

AMERICAN ARTISAN

SEPTEMBER
1960

Contents . . . Page 4

- Warm Air Heating
- Sheet Metal Contracting
- Air Conditioning
- Ventilation and Dust Removal

*Assembly of panels at convenient working
height speeds fabrication
of staggered seam
ducts . . . page 36*



Cooling Standards: Outline How to Re-
duce Draft Complaints 57

A New Plan to Improve Sheet Metal
Bidding Practices 52

Solar Energy as a Heat Source 46

Five Ways for a Salesman to Increase
Sales 65

Use Competition Between Restaurants
to Sell Air Conditioning 42

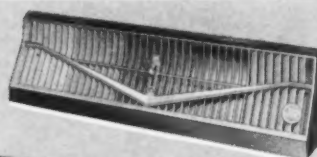
Ductwork Tables for Estimating Job
Costs 48

Adding a Heat Pump to a Basementless
House 50

How to Make Your Sales Meetings Pay
Off 68

Air Control

LOOK
TO Air
Control
for
QUALITY



NEW "SUPER 38" PERIMETER DIFFUSER
18" long. BIG 38 inches free area. Rugged
High Impact Polystyrene face. Wide spread
diffusing air pattern. Decorator styling.
2-tone beige finish.

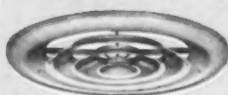


NO. 20 SERIES REGISTERS AND GRILLES
Sidewall or baseboard. 4-way control of air
pattern. Positive, easy Adjusto-Stop balancing
at register face. 2-tone beige finish. Full range
of sizes.

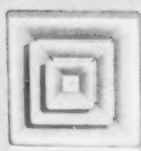


NO. 188 SERIES BASEBOARD
PERIMETER DIFFUSER
Finest available. Easy, fast to install.
Patented Rotary Damper permits consistent
air pattern. Adjusto-Stop balancing. Variety of
sizes. Beige prime coat finish.

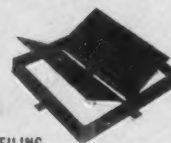
WORLD'S MOST COMPLETE LINE OF REGISTERS, GRILLES, DIFFUSERS



ROUND AND SQUARE CEILING DIFFUSERS
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styling. 2" width Air Flow rings deflect air
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outer "anti-smudge" ring. Sponge rubber
gasket. Satin beige prime coat finish.
Many sizes and styles.



ROUND AND SQUARE CEILING
DIFFUSER DAMPERS
Rattle-free operation under extreme air velocities. Adjusto-
Stop balancing at diffuser face. Unique nylon screw-type
operator opens or closes dampers with ease.



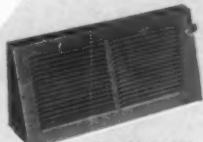
NO. 25 SIDEWALL
PERIMETER DIFFUSER
Factory-set for wide fan-shaped
air pattern. Fully adjustable to meet
special installation requirements.
Customer-approved styling. 2-tone
beige finish. Baseboard type also
available.



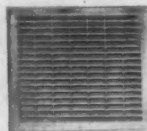
NO. 170 SERIES BASEBOARD
PERIMETER DIFFUSERS
Compact. Exclusive "Air-Sweep" styling. Big 34 sq. in. free
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on damper for easy balancing at face.
2-tone beige or chrome plated
finish. Many sizes.



NO. 15 SERIES
SIDEWALL PERIMETER DIFFUSERS
Flared top section. Curved damper. Wide
fan-shaped air pattern. Modern styling.
Sponge rubber gasket. In 2 sizes. Beige
prime coat or metal-scent finish.



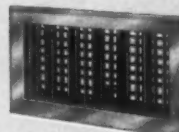
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BASEBOARD PERIMETER
REGISTERS AND GRILLES
Low cost. 3 1/4" projection at base.
Adjustable fins. Adjusto-Stop balancing.
Easy to install. Metal-scent or
beige prime coat finish.
Various sizes.



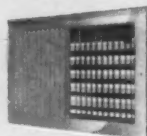
NO. 333 RETURN AIR GRILLES
Low cost. Exceptionally large free
area. One piece heavy gauge steel
construction. Metal-scent or beige
prime coat finish. Many sizes.



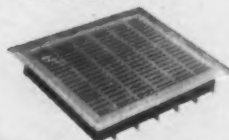
NO. 150 SERIES
ECONOMY FLOOR DIFFUSER
Ideal for projects or where low cost is prime factor. One piece
heavy-gauge steel face. Dial operator. Adjusto-Stop balancing.
Locked volume setting. Sierra-Brown enamel finish. 5 sizes.



MULTI-LOUVER
REGISTERS AND GRILLES
Exclusive Multi-Louver Valve
provides excellent vertical
control of air pattern. Low
cost. Strong one piece face.
Many sizes. Beige prime
coat finish.



MULTI-TROL REGISTERS
AND GRILLES
Features patented butterfly-type
Shallow-Valve for positive air-volume
control. Assures even air distribu-
tion. Advanced shallow design. Ad-
justable deflection bars. Available in
4-way or 2-way air pattern control.
Variety of styles, sizes and types.



NO. 40 SERIES FLOOR REGISTERS
Unique design provides flat walking
surface. Close mesh design. Heavy
amply-spaced frets. Easy-to-
operate dial operator. Variety
of sizes. Oak or
Metal-scent finish.



NO. 42
FLOOR DIFFUSER
One-piece face. Curved adjustable
vanes reduce air resistance. Stream-
lined valve. Extra strong construction.
Many sizes. Metal-scent or oak finish.



SHEET METAL SCREWS
New SPEE-D hex washer head screws "drill
their own hole". Cut labor cost in half.
Drive chuck is key to operation. 4 sizes. 3
packs. 1 finish. Low cost sheet metal (lap-
ping) screws also available.

Many other styles and sizes of Registers,
Grilles and Diffusers are illustrated
and described in Air Control's
new Catalog 60-AC.



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clip this coupon to a postcard and mail to
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ADDRESS _____
CITY _____ STATE _____

LEIGH INDUSTRIES INC.

Asheville, N. Carolina, another new subsidiary of Air Control Products, Inc. Sales, Engineering and Advertising Offices: Coopersville, Mich. West Coast
Warehouse: Leigh Industries (California), Inc., 649 S. Anderson St., Los Angeles, California. Made in Canada by: Leigh Metal Products Ltd., 72 York St.,
London, Ont. Prairie Provinces Affiliate: Leigh-Tornel Distributors Ltd., 549 Archibald Street, St. Boniface, Manitoba — Copyright 1960-ACP, Inc.

Sundstrand
RELY-ABILITY
backs America's
oil burners

**Sundstrand service and genuine parts
assure reliable burner performance,
fewer service call-backs all winter long**



precision built into every Sundstrand fuel unit. And, only factory-trained service specialists using genuine parts restore the just-like-new performance and reliability of Sundstrand fuel units.

You save in the long run too. Costly service call-backs caused by inferior parts or a poor repair job are eliminated. With Sundstrand certified service one call does the job.

For fast, economical maintenance and increased customer satisfaction all winter long, back the performance of your Sundstrand-equipped burners with certified service and genuine Sundstrand parts.

You'll be dollars ahead this fall if you have the Sundstrand fuel units you service checked and overhauled at a Sundstrand certified service center.

Here's why. Only genuine Sundstrand parts are made to match the original quality and



More than 80 Sundstrand certified service stations across the country display this sign. Look for it, it's your assurance of reliability. List of dealers available on request.

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In Sweden by Sundstrand Hydraulic AB Stockholm;

In France by R. S. Stockvis et Fils, S. A. 20-22 Rue Des Petits-Hôtels, Paris



AMERICAN ARTISAN

- WARM AIR HEATING • SHEET METAL CONTRACTING
- AIR CONDITIONING • VENTILATION AND DUST REMOVAL

SEPTEMBER 1960

FEATURES

Special Fabrication Techniques Add Rigidity to Duct Systems	36
How to Develop a Tee Joint	40
Ductwork Tables for Residential Systems	43
Economic Utilization of Solar Energy	46
Heat Pump Solves Comfort Problem Faced by New Homeowner ..	50
New Plan to Improve Bidding Practices	52
Market Increases for Metal Church Spires	56
Cooling Standards Help Design Drafts Out of Air Conditioning	57
Use Competition Between Restaurants to Sell Air Conditioning	62
Aircraft Solves Hoisting Problem	64
Ways to Increase Sales Volume and Reduce Costs Per Sale	65
How to Figure Cost of Service Calls	67
Make Your Sales Meetings Pay Off	68
Ways to Maintain Volume in a Growing Electric Heat Market	85
Implied "Payment in Full" Doesn't Hold Up	88

DEPARTMENTS

The Editor's Notebook	6
What's Happening	19
Editorial: How to Sell a Bid	35
Hugh Reid's Pattern Problem	40
Idea Exchange for Dealers and Contractors	85
You and the Law	88
What the Associations Are Doing	92
Equipment Developments	114
New Literature	128
We Hear That	136
Wholesaler Doings	142
Merchandising Ideas	146
Appointments	148
Index to Advertisers	154

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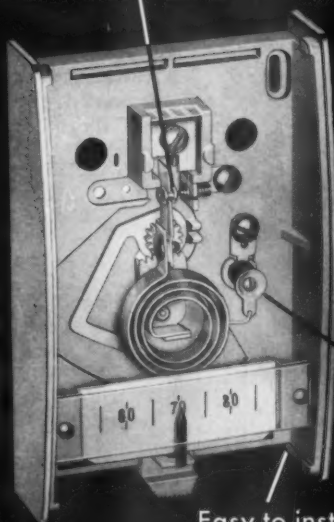
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TRY

this new Penn thermostat
on your next heating job...your customers
will like the way it holds room temperature
within a fraction of a degree of selected
level...it's the kind of comfort people have
learned to expect from Penn thermostats!

Trim, thin-line design
styled in neutral beige
and brown to harmonize
with any interior decor.

Positive, snap-acting contacts
... no chattering ... no "on-off"
operation when vibration occurs.



Simple, ring-type
heat anticipator.

Easy to install ... no mounting
bracket needed ... no leveling.

Easy-to-read thermometer.



Slide-set temperature dial
is easy to set and read.

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

the editor's notebook

Thumbing Through This Month's Artisan

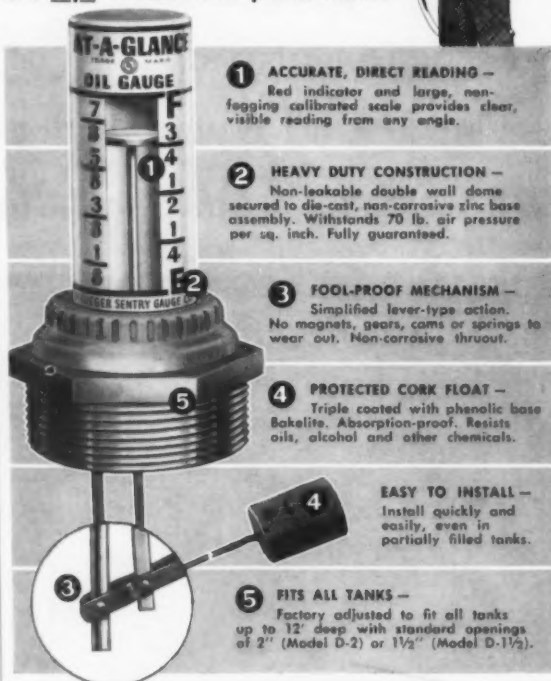
... we find a dealer-contractor who specializes in duct fabrication has developed a system of staggered standing seams that provide a rigid duct which often surpasses the job specifications written by consulting engineers and architects. In *Special Fabrication Techniques Add Rigidity to Duct Systems* you can see how this system results in a lower installed cost to the customer because larger sections are fabricated at the shop which in turn cuts down on the assembly time at the job site. You can also see what preparations go into working out the details and drawing up duct schedules, and what specially designed equipment helps speed the component parts through the fabrication process.

Selling

... prospects the maximum number of products handled enables the salesman to increase his commission per sale, resulting in lower overall cost per customer. How to help the salesman earn more and to increase your sales volume is described in the two articles: *Five Ways to Increase Sales Volume and Reduce Total Costs Per Sale*, and *Make Your Sales Meetings Pay Off*. Various techniques that warm air heating-air conditioning dealer-contractors can adopt to their sales promotional methods show how continued promotion that is properly directed to previous customers can be a rich source of sales leads are explained in *Five Ways to Increase Sales Volume and Reduce Total Costs Per Sale*. Tips on staging inter-

Here's why *Sentry* AT-A-GLANCE TANK GAUGES

are tops in sales and performance



1 ACCURATE, DIRECT READING —
Red indicator and large, non-fogging calibrated scale provides clear, visible reading from any angle.

2 HEAVY DUTY CONSTRUCTION —
Non-leakable double wall dome secured to die-cast, non-corrosive zinc base assembly. Withstands 70 lb. air pressure per sq. inch. Fully guaranteed.

3 FOOL-PROOF MECHANISM —
Simplified lever-type action. No magnets, gears, cams or springs to wear out. Non-corrosive thruout.

4 PROTECTED CORK FLOAT —
Triple coated with phenolic base Bakelite. Absorption-proof. Resists oils, alcohol and other chemicals.

EASY TO INSTALL —
Install quickly and easily, even in partially filled tanks.

5 FITS ALL TANKS —
Factory adjusted to fit all tanks up to 12" deep with standard openings of 2" (Model D-2) or 1½" (Model D-1½).

Fastest selling in the industry, Sentry AT-A-GLANCE gauges are recognized for their superior qualities of accurate measuring, clear visible reading, rugged but simplified construction and long-life durability. They are fully guaranteed and "listed as standard" by Underwriter's Laboratories. Complete Literature, Sales Brochures and Counter Displays available.

SENTRY Superior Quality THERMA-GAUGE

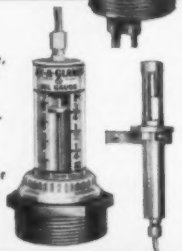
Similar to the standard AT-A-GLANCE gauge above, but features a solid red thermometer type indicator and a two-piece die cast plug-nut assembly which permits simplified tank installation.



STOVE AND SPACE HEATER GAUGES
Several models with accurate, easy-to-read indicators to fit all tanks. Also models for small tanks such as power mowers and outboard motors.



REMOTE READING TANK GAUGES
Several models for outdoor reading of levels in tanks indoors, underground or at delivery fill pipe.



KRUEGER *Sentry* GAUGES
GREEN BAY • WISCONSIN

the editor's notebook

(Continued)

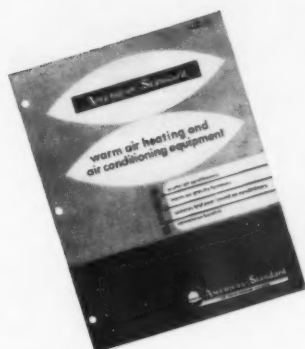
esting and effective sales meeting sessions that will hold salesman's interest and produce tangible results are highlighted in *Make Your Sales Meetings Pay Off*. Whether your organization is large or small, these two articles can provide you with guidance that will help close many leads and to sell the maximum number of products handled.

Heat

... with solar energy as a total or partial heat source may provide us with an economical source of energy in the future to relieve the demands put on our depleting reserves of gas, oil and coal. *Utilization of Solar Energy Moves Toward Economic Application* is designed to bring you up-to-date on the progress made by engineers and architects in solving the problems that up till now have limited the use of solar radiation because of the high cost involved in energy collection and storage for heating purposes. Several areas of research and design activity associated with solar collectors which may lead to an increased quantity of heat collected per dollar cost of collector are explained in detail.

Bidding

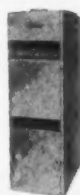
... practices are undergoing a favorable change in the Chicago area through the efforts of a coordinating committee that represents the Building Construction Industry of Chicago. *A New Plan to Improve Bidding Practices* tells the results of the careful study given by this group to current bidding practices. After two years of intensive research



Get this catalog of the Industry's Most Complete "Profit" Line!

At your Distributor today!

GAS-FIRED FURNACES



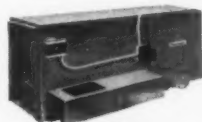
GUB
Upflow
50,000 to 200,000 BTUH
Air Conditioning Furnace
75,000 to 150,000 BTUH



GCA
Downflow
75,000 to 150,000 BTUH



GLA
Basement
75,000 & 300,000 BTUH



GHA
Horizontal
85,000 to 150,000 BTUH



GG
Gravity
90,000 to 145,000 BTUH

OIL-FIRED FURNACES



U-OB
Upflow
84,000 to 140,000 BTUH



CF-OB
Downflow
84,000 to 140,000 BTUH



H-OB
Horizontal
84,000 to 252,000 BTUH



B-OB
Basement
84,000 to 112,000 BTUH



B-1100
Basement
235,000 to 388,000 BTUH



1300-OB
Basement
128,800 to 196,000 BTUH

HEAT PUMPS



ACPR
Packaged Unit
2, 3, & 4 H.P.



AC-BR
Outside Unit
3 & 5 H.P.



SH
Supplementary Electric Heater
4, 8, 12, & 16 K.W. 13,600 to 54,700 BTUH



RC-BR
Inside Unit w/Universal Blower

SPLIT-SYSTEM

ELECTRIC FURNACES



EU&EC
Upflow and Downflow
41,000 to 82,000 BTUH; two models.
one for
2- or 3-ton "Add-on" Cooling,
one for
5-ton unit.

WEATHER STATION



W474A
Tops in Controls, High-Profit
and Prestige item. The show-
piece of a central air condition-
ing installation!

PLUS: packaged and split-system air-cooled air conditioners...oil and gas conversion burners, "all fuels" winter air conditioners and gravity furnaces.

Mr. Dealer: Look at the facts...look at the equipment...consider the advantages—and you'll see why your most profitable move is to an American-Standard Dealership. Get the facts now—call your nearby American-Standard Air Conditioning Division Distributor. Or write to American-Standard Air Conditioning Division, 40 West 40th Street, New York 18, N. Y.



American-Standard and Standard® are trademarks of American Radiator & Standard Sanitary Corporation

AMERICAN-Standard
AIR CONDITIONING DIVISION

the editor's notebook

(Continued)

and discussion, this group arrived at a plan to curb the practices of bid shopping and bid peddling by general contractors, and have taken steps to spell out the evils of bid shopping, bid peddling and broker contractors to other associations throughout the country that are associated with the building industry. This timely article shows how the outmoded bidding procedures work to the disadvantage of the building owner and to those in the building industry. It also explains how the system of bid separation discourages this practice to the advantage of the associations and to the consumer.

FHA Loans Prove Good Sales Tool

HAVE YOU considered using FHA Property Improvement Loans as a sales tool to increase your modernization work? It's an excellent way to help your prospects to pay for a quality heating system, and it makes cash quickly available for the operation of your business.

In February, the Federal Housing Administration, Washington 25, D. C., revised its "Dealers' and Contractors' Guide for Property Improvement Loans," (FH 30A, 10 cents). Types of loans (four) are described and instructions are given on how to fill out the credit application form.

Also included is a table of monthly payments for different loan periods up to 60 months. The dealer-contractor can quote monthly payments instead of a total installed price, and if he is faced with the competition of a lower quotation from another company, he can quickly show how small is the additional cost per month for a system designed to provide maximum



A USEFUL SALES TOOL



To use in selling **AIR-EASE** Heating and Air Conditioning Units.

This File Folder includes Brochures in color, with dimensions and specifications of all models of gas and oil fired heating units, including the NEW BTS-200 (200,000 BTU input) gas fired and BTL-200 (224,000 BTU input) oil fired units.

Heating from 60,000 to 200,000 BTU. Cooling from 2 to 5 tons.

WRITE for this new sales tool and the name of your nearest distributor.



AIR-EASE

THE JOHNSON FURNACE COMPANY
2129 WEST 117th STREET, CLEVELAND 11, OHIO

the editor's notebook

(Continued)

comfort throughout the house. He can list the additional features offered by his recommendations, and can show that it costs only pennies more a month to have those features.

Another good sales point that use of an FHA loan provides is this: FHA regulations require that dealer-contractors receive approval by the lending institution. This point, in itself, carries weight as to the dealer-contractor's ability and reputation.

What Insurance Should SM Contractor Carry?

THE QUESTION often arises as to whether the sheet metal contractor is responsible for accidents occurring while his employees are using elevators on large construction jobs. W. T. Williams, an independent insurance agent, told delegates attending the Georgia Sheet Metal Contractors' convention that for best protection insurance coverage should be carried in each of these types of insurance policies:

- 1) Workmen's Compensation.
- 2) Comprehensive General Liability, including "elevators" on an "if any, premium to be determined" basis.
- 3) Contractual Liability Insurance.

All of these policies should have adequate limits of liability because in this day and time large judgments and awards are frequently made.

'Bid Shopping' — Is There a Cure?

If you've been having bid shopping difficulties in your area and want to do something about it, send to Contracting Plasterers' and Lathers' International Association, 622 Sheraton Bldg., 711 - 14th St., N.W., Washington 5, D.C., for a copy of a 48-page booklet entitled "A

CLEATS...

"S" OR DRIVE

8 to 10 Times

FASTER

THAN MANUAL FORMING

HERE'S PROOF...
taken from actual
shop production
records

	AVERAGE BAR FOLDER PRODUCTION	AVERAGE CLEATFORMER PRODUCTION
"S" CLEATS 12" LONG	125	1200
DRIVE CLEATS 12" LONG	250	2100

Extra Advantages:

- 1 "S" cleats made on the Cleatformer have a hem on both edges for added strength, for handling ease and safety, greater stiffness.
- 2 Cleats of any length can be rolled on the Cleatformer . . . no limit.



CLEATFORMER

THE ONE MACHINE THAT
PRODUCES ALL FIVE OF
THESE SHAPES...

Makes both "S" and drive cleats with no changeover. But, it's more than just an "S" and drive machine" . . . the Cleatformer will produce 3 additional shapes—right angle flange, winding seam and T-connection—with a single set of auxiliary rolls by merely shifting a guide position. The Cleatformer is versatile, it's fast . . . it's a money-maker.



With the Cleatformer, you turn out more work faster . . . using fewer men . . . cut cleat fabrication costs to the bone. Best of all, it'll turn out *extra* profits for you, day after day, year after year. More information? Ask us.

LOCKFORMER®

TIME SAVING, MONEY MAKING EQUIPMENT

manufactured by

THE LOCKFORMER COMPANY

Dept. A, 4615 West Roosevelt Road, Chicago 50, Illinois

In Canada: Brown Boggs Foundry & Machine Co., Ltd., Hamilton, Ontario

the editor's notebook

(Continued)

Discussion on Bid Shopping." It will cost you \$2 for a single copy, but less if ordered in quantities. The \$2 will be well spent.

As you study the book, underline in red pencil the statements that impress you most — statements such as: "No one benefits from these (bid shopping) practices," page 15; "The practice of awarding separate subcontracts for all mechanical work . . . obviously solves bid shopping problems and also provides other advantages," page 24; "The best approach is a strong listing law," page 25; "You might classify subcontractors as to their character, financial responsibility and type of work they are capable of handling," page 29. There are many other ideas and proposals that can be used to overcome bid shopping.

After you've studied the book's contents, call a meeting of your fellow contractors, have an open discussion on the subject, appoint a committee to investigate procedures best suited to meet your local situation. Set a date for a second meeting to discuss definite steps that can be taken to curb this harmful practice.

Using Your Trademark To Full Capacity?

SYMBOLS used as trademarks are effective advertising tools. Considerable planning must go into the creation of a trademark, and it must not be allowed to grow out of date. Some sheet metal contractors — like Young and Bertke Co., Cincinnati, whose symbol is a metal man — use their trademarks very effectively to show the services they offer. The gas industry uses the blue flame and gets wide recognition.

Keeping a trademark modern is important, and Westinghouse Electric Corp. has

give winter a warm welcome in your community



with

PEERLESS

PERFECTEMP

FURNACES

Offer Lifetime Guarantee,
Get A Warm Welcome From
Home Owners!

Furnace performance determines customer satisfaction, and that's why Peerless quality puts you out front of competition. Peerless PerfecTemp performance brings all-dimension comfort all through the home. Balanced design plus extra heavy-duty heat exchanger give Peerless furnaces the heart for hard work. That's why Peerless can offer a factory written lifetime guarantee on Versat-all models. Peerless manufactures a complete line of furnaces for gas, oil and coal from 65,000 to 1,000,000 BTU, and also manufactures the Clima Pump, the all new, all electric heat pump. Write today for all the facts regarding Peerless . . . there's profit in it for you!

PEERLESS CORPORATION

1853 LUDLOW AVENUE
INDIANAPOLIS 7, INDIANA

Manufacturers of quality Furnaces, Central Air Conditioning
and Electric Clima-Pumps.

the editor's notebook

(Continued)

been doing that. For the fifth time in its 74-year history, the company has redesigned its corporate identity symbol.

The new trademark retains the traditional circle, but the dimensions have been changed



and three small solid circles have been added to the peaks of the W.

The result is that, although only one of the original elements — the W — has been appreciably altered, the new mark has greatly increased flexibility, pictorial interest and memorability.

New AC Equipment Cuts Factory Cooling Costs

RECENT strides made in the development of larger size package air conditioning equipment mean installations can be made at lower cost, according to Carl W. Millsom, Perfection Div., Hupp Corp. In many instances, air conditioning could not be economically installed previously due to the plant's size, lack of water for cooling, or the complexity of built-up systems that required a full time stationary engineer on the job.

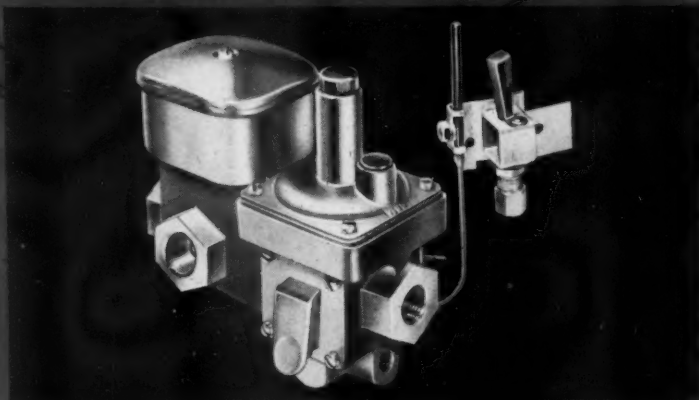
One of the first things management wants to know is what type of equipment is best for the plant. The complete built-up system has its place where exact temperatures and humidities and special filtration are required, Mr. Millsom said, "but these conditions are the exceptional, not the normal."

In his experience, he said, the engineer who can recommend any type of system will normally specify packaged

FOR
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DEPENDABLE
HEATING
CONTROLS...

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COMPLETE
MANIFOLD ASSEMBLY



Includes pressure regulator,
safety pilot, main valve, and 100% shut-off
and safe light. In all popular sizes for
natural, manufactured, and LP gases.

McQUAY-NORRIS MANUFACTURING CO.

Electric Products Division, ST. LOUIS 18, MO.
60 years in the manufacture of precision products



the editor's notebook

(Continued)

units after a thorough survey because packaged units offer:

- 1) Low capital investment.
- 2) Greatest flexibility — can be moved to fit production changes.
- 3) Advantage of being used only where needed and economical.
- 4) Ease of installation.
- 5) Simplicity of service and maintenance.
- 6) Ready availability of parts.
- 7) Greater salvage value if the plant is closed.
- 8) Package plans to make buying easier, through cash, bank loan or leasing.

"Packaged air conditioners installed in factories have shown interesting results," Mr. Millsom pointed out. "A government report shows an 80 percent drop in maintenance costs in a nylon hosiery plant, a 25 percent drop in absenteeism in 75 plants surveyed, a 25 percent drop in reworked parts in a watch manufacturing plant, and a 50 percent increase in drafting room output at a large utility.

"Manufacturing people know how much air conditioning has increased sales in all types of mercantile establishments, and has increased attendance at theaters. A great many of them have air conditioned their offices and enjoy the benefits. Now they can reap even greater benefits in their manufacturing areas because of air conditioning."

Good Manager Has More Than Technical Skill

LEARNING how to combine human and technical know-how is an important step in a businessman's progress toward self-improvement, according to the Small Business Administration's Aid No. 46. The bulletin says:

"The management of any business operation requires a certain amount of technical

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for your
gas fired
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featuring
"push-button"
pilot lighting

Designed for the manufacturer to become part of original equipment on all makes and models . . . the Modern Lighter Tube, with "push-button" pilot lighting from the outside, enables your unit to be completely safe and free from sometimes hazardous lighting practices.

The Modern Lighter Tube carries further and burns more evenly with a minimum of pressure and with any type of gas . . .

ATTENTION MANUFACTURERS OF SECTIONAL TYPE BURNERS

Now . . . Modern Lighters, Inc. has available the "Modern Carry-Over Tube" for integral lighting of sections. Engineered by you to fit your product. Complete details and engineering samples available.

**MODERN
LIGHTERS,
INC.**

Northville, Michigan

WRITE FOR
LITERATURE



the editor's notebook

(Continued)

skill (such as, let's say, accounting or sales management). But the possession of such skills alone does not make a man a good manager.

"The good manager must be able to deal with people at least as effectively as he deals with business tools. More so, in fact. Think back now: Haven't there been many opportunities when you had to intervene personally to straighten out an unhappy employee, when you had to exert your personal influence to make people with widely differing personalities work together harmoniously? And didn't you at one time or another listen to one of your employees' personal troubles, and at least try to help him out? That's in part what makes a good manager.

"The good manager must be as shrewd an appraiser of people as possible. But appraising people means to look at them objectively; it means to lay aside one's prejudices and personal feelings. Furthermore, the good manager should recognize the existence of other viewpoints and beliefs, and make a sincere effort to understand and appreciate them. Of course, it must be admitted that human behavior is one of the most difficult things to observe objectively, but the manager who can do it is the man who will run his operation successfully."

The study of human behavior is not only interesting but is a rewarding experience as well. There are four more qualities a good manager must develop. One of them is the ability to be a creative thinker. We'll cover this subject next month in this column.

Clyde M. Barnes

Editor

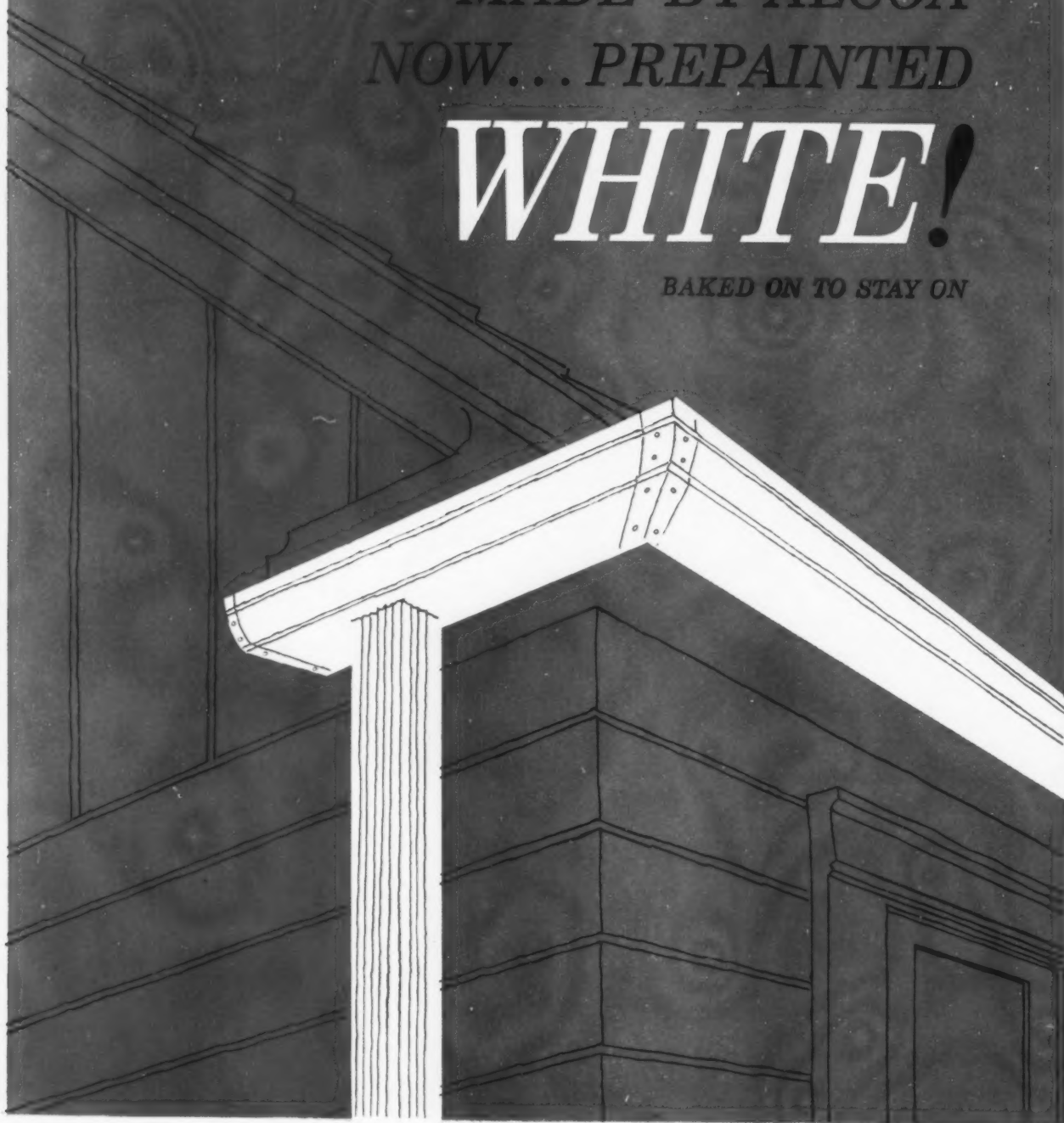


SMOKE SIGNAL spells "comfort"! A convincing smoke-diffusion demonstration of any Lima Register proves it! Occupants feel no unbalanced blasts of heat nor spine-chilling gusts of cooled air. Simple valve and vane adjustments permit perfect four-way air distribution —assure healthful room-wide comfort. Get all the facts —send for latest Lima catalog of Registers, Diffusers and Grilles.

RELY ON LIMA FOR HEATING & COOLING *Lima* REGISTER CO., LIMA, OHIO

WATERTIGHT
ALUMINUM GUTTERS
MADE BY ALCOA
NOW...PREPAINTED
WHITE!

BAKED ON TO STAY ON



"I sell the best way to get rid of gutter installation and maintenance problems," Ohio distributor reports

"ALCOA'S ALUMALURE FINISH

is by far the *best* preainted finish on any gutter system on the market," says Mat J. Bosch (right), distributor of Alcoa building products and manager of Famous Furnace, Mansfield, Ohio. "There's nothing more disheartening to a new homeowner than to find paint peeling off his gutters and downspouts only a year after installation. This often is a problem with both galvanized and other aluminum systems. But the new Alcoa preainted white gutter *eliminates this problem* for the builder, the tinner, the remodeler."

IN HIS 100-HOME Walnut Hills development, Mansfield builder Jack A. Morrison uses both Alcoa® Siding and the new Alcoa preainted gutter and downspout system. "This is the best roofing product Alcoa ever came out with," he declares. Mr. Morrison is considering the new system for all his homes, because he estimates it costs *less* to install the preainted Alcoa system than to install a competitive system—and paint it. "Nor could any painter apply a finish with a brush



that could compare with Alcoa's Alumalure finish," he says.

JOSEPH A. WAGNER, heating and sheet metal contractor in Mansfield, who does most of Mr. Morrison's sheet metal work, states: "I was a bit skeptical at first, but I've found the Alcoa system installs much faster; and it's plenty strong for our rough Ohio winters and quick spring thaws!"

Applicator, builder or distributor, learn how you can cash in on the new Alcoa preainted white gutter and downspout system. Call your nearest Alcoa sales office—or send the coupon below to Aluminum Company of America, 1892-J Alcoa Building, Pittsburgh 19, Pa.

Aluminum Company of America, 1892-J Alcoa Building, Pittsburgh 19, Pa.

Please send me detailed information on new Alcoa preainted white gutter and downspout system . . . and the name of my nearest distributor for Alcoa rain-carrying equipment.

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Address

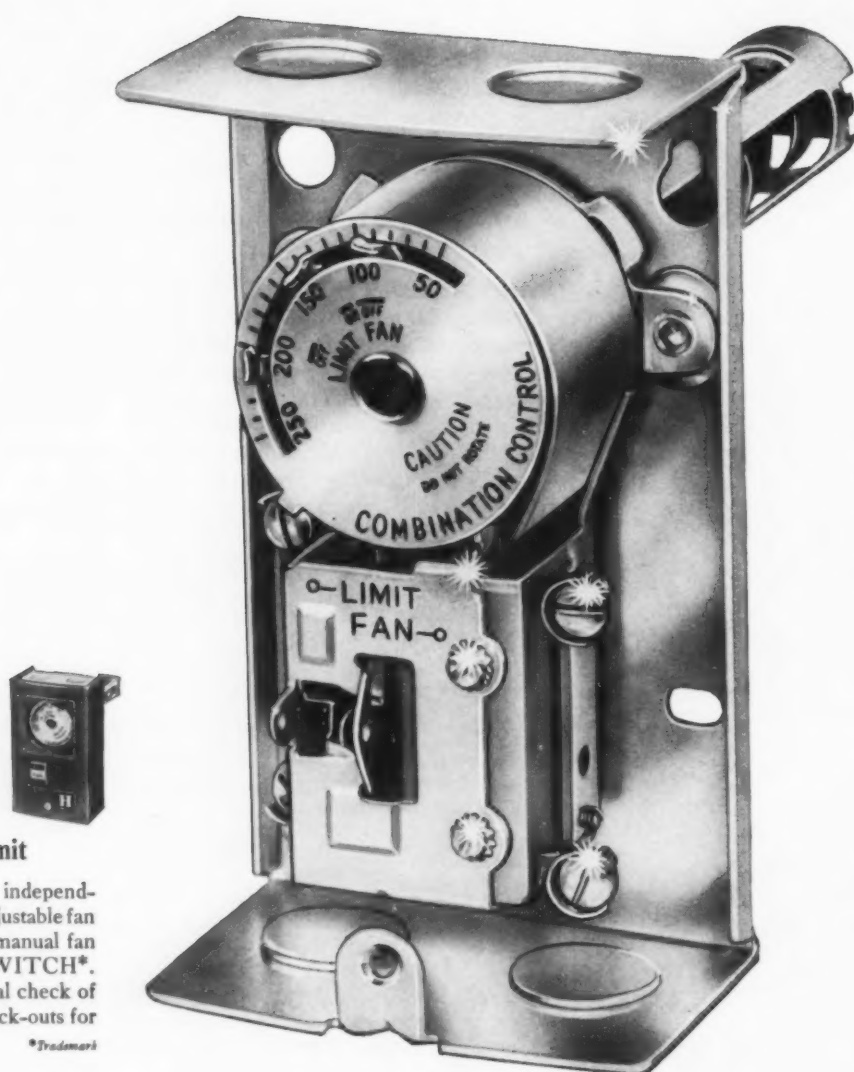
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ALCOA ALUMINUM

GUTTERS AND DOWNSPOUTS

WVI



Honeywell L498B Fan Limit

Has adjustable fan setting with independent fan-on and fan-off levers; adjustable fan differential and limit settings; manual fan switch; precision MICRO SWITCH*. Window in cover permits visual check of operation. Top and bottom knock-outs for easy wiring.

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SE

WISE contractors install the
Honeywell L498B Fan Limit to
please customers, cut call-backs.

And many of these men are wiser for having taken advantage of Honeywell's dealer education programs. 103,730 men profited from them last year. And this is only *one* of lots of ways you profit by handling all-Honeywell, matched controls. For when you deal with Honeywell, you're *backed* by Honey-

well. Backed 100% by the best service in the industry and a complete line of quality products. And you get reliability—easier installation—simplified inventories—training school for your crew—*plus* really fast help when you need it from 112 Honeywell sales-service offices close as your phone.

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YEAR ENGINEERING THE FUTURE

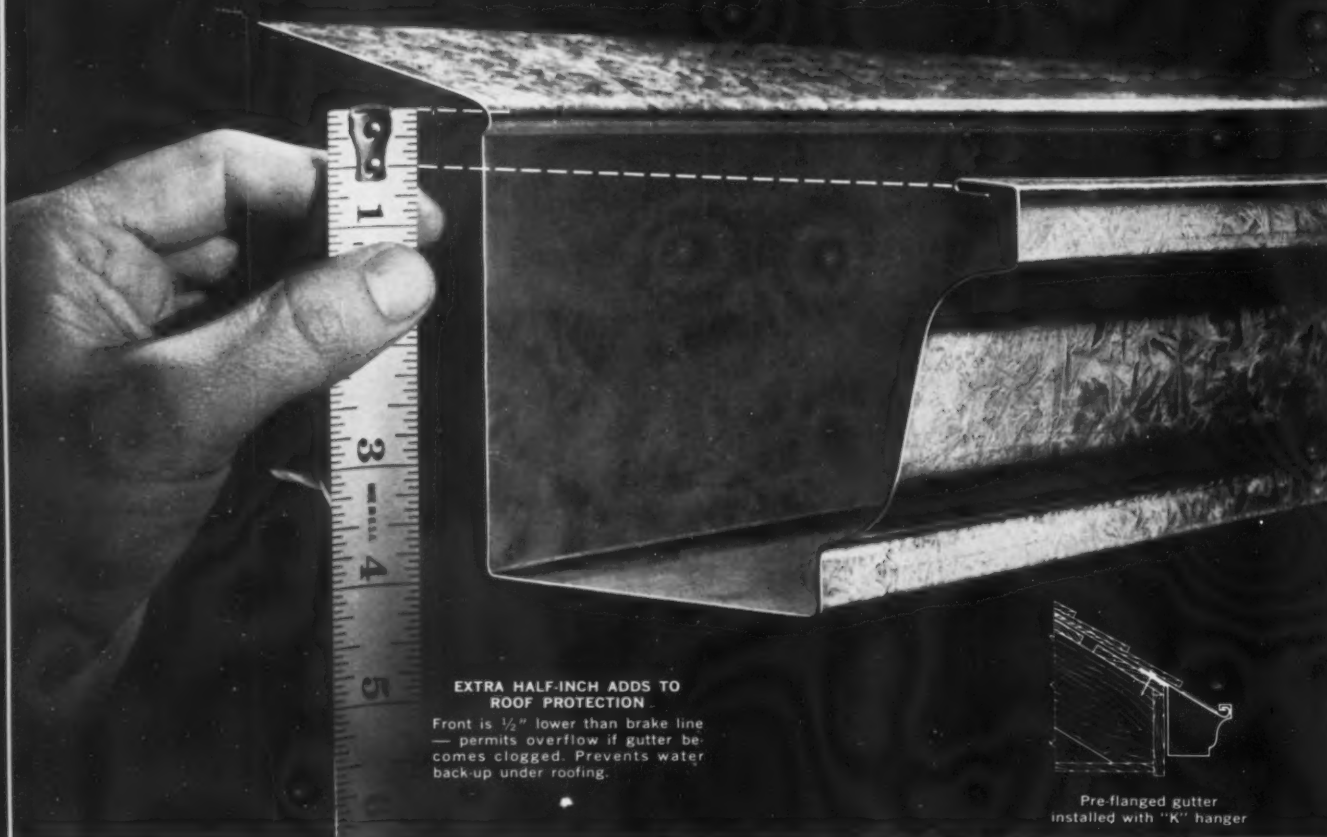
For information on Honeywell's complete line of control systems for heating and cooling, call your local Honeywell office, or write Minneapolis-Honeywell, Dept. AA-9-15, Minneapolis 8, Minnesota. Honeywell sales and service coverage is world-wide.

Honeywell



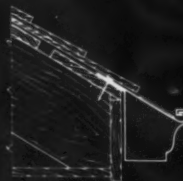
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NEW MILCOR PRE-FLANGED HIGHBACK GUTTER



EXTRA HALF-INCH ADDS TO
ROOF PROTECTION.

Front is $\frac{1}{2}$ " lower than brake line — permits overflow if gutter becomes clogged. Prevents water back-up under roofing.



Pre-flanged gutter
installed with "K" hanger

CUTS YOUR JOB COSTS THREE WAYS

1. You eliminate flashing! Back flange of gutter covers and protects the edge of the roof. Saves cost of separate roof edge installation.

2. You eliminate a brake operation! Each length of Milcor Pre-flanged Highback has the roof flange already formed.

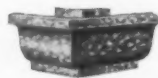
3. You finish jobs faster! Style K Gutter Hanger is hooked into open hem of front bead and nailed to roof boards, fastening front and back of gutter in one operation — fastest installation method in use today!

Try it on your next job. Furnished in 4" and 5" sizes; 10-ft., 20-ft., 25-ft., 30-ft., and 32-ft. lengths; 28 ga. and 26 ga. Ti-Co Galvanized Steel. See your jobber or write us for further information and prices.

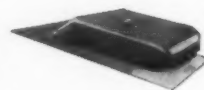
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WHAT'S HAPPENING . . .

SM Workers Win Plastic Gutter Work

ELGIN, ILL. — Installation of plastic gutters was awarded to sheet metal journeymen in two recent decisions of NJBSJD, according to the Sheet Metal and Air Conditioning Contractors' National Association. In both cases the contesting unions were sheet metal workers and carpenters. One case was in St. Paul, Minn., the other in Carmel, Calif. In the St. Paul case, the dispute went as far as an oral hearing following the initial award.

Congressman Praises Certification Program

WASHINGTON, D. C. — "A forward-looking step in behalf of the American public," said Congressman Joel T. Broyhill (R., Va.) in describing the Air-Conditioning and Refrigeration Institute's Unitary Air-Conditioner Certification Program.

Congressman Broyhill pointed out in his speech, which was inserted in the Congressional Record, that this program "gives assurance to the purchaser of residential air conditioning that the unit he buys bearing the ARI seal of certification will perform according to the rated standards of the institute."

Hold Code Meetings In Los Angeles

LOS ANGELES — A series of six weekly meetings on the 1960 Los Angeles Heating, Ventilating and Refrigeration Code has been scheduled by the Institute of Heat-

(Continued on page 22)

Air Force Studies Heating, Cooling Of Homes at Six Southern Bases

WASHINGTON, D. C. — To provide performance data on heating and cooling systems in homes at air force bases, the United States Air Force, in cooperation with the National Bureau of Standards, has initiated field studies at six southern bases, according to the "Air Force Civil Engineer." The program is expected to yield technical information for use in designing air conditioning installations, as well as in determining heating and cooling costs.

Studies are being made at bases in Charleston, S. C.; Columbus, Miss.; Blytheville, Ark.; Little Rock, Ark.; Abilene, Tex.; and Goldsboro, N. C.

Five homes at each site will be used for the studies. Heat pumps are used at three of the bases, combination gas and electric systems at the others.

A major aspect of the program involves direct measurement of energy consumption of the two types of heating and cooling systems. The instrumentation, which is nearing completion, was designed to give essentially the same type of measurements for both systems. In each case, the following monthly energy determinations will be made from meter readings made by the base personnel:

- 1) Total home.
- 2) Total heat pump (heating) or gas furnace.
- 3) Total heat pump (cooling) or air conditioner.
- 4) Water heater.
- 5) Dryer.
- 6) Range.
- 7) Bathroom resistance heater (some bases).
- 8) Miscellaneous.

Early in the program it was realized that the study had many

variables, all of which must be carefully monitored if the program is to develop worthwhile data. For example, the metering of components such as the dryer and range will be necessary to remove intangibles which will arise because of different household habits. To maintain some

(Continued on page 22)

Heating Dealers Urged to Promote Cleaner Air Week

PITTSBURGH — Cooperation of heating firms in promoting "Cleaner Air Week" at the community level is being urged by the Air Pollution Control Association. Tuesday of "Cleaner Air Week" (Oct. 23-29) has been designated "Home Heating Day," in keeping with the association's policy of assigning special days to emphasize specific objectives of the campaign. On that day homeowners will be urged through newspapers, TV, radio and other publicity media to have their furnaces and chimneys cleaned and to check heating maintenance needs. Warm air heating dealer-contractors are being asked to work with local APCA committees to promote maintenance of heating plants as one way the public can help stop air pollution.

Other opportunities for tie-in heating promotion will be offered by "Air Pollution Control Official Day" (Friday), when the work of air pollution control officials will be publicized and they will be given recognition for their important public service.

(More news on page 22)

Ohio's largest air conditioning than 200 JOBS FROM FRAM[®] permachem-

This return card brought in more than 200 service jobs...



Proof you can boost service business with amazing FRAM Filters that kill 99+% of germs trapped!

Early this Spring, Quiggin & Son, Cleveland heating and cooling service contractors, decided to handle FRAM permachem-treated Air Filters *exclusively*.

Owner Raymond Quiggin felt FRAM Filters could do an outstanding job for his customers. What's more, he appreciated the fact that FRAM Filters were not being carried in discount houses. But most of all, Mr. Quiggin chose FRAM Filters because he saw great promotional advantages in handling the air filter that kills 99+% of germs trapped!

To prove it, Mr. Quiggin selected 5000 names in the Cleveland area for a return-card mailing. He offered a

free FRAM permachem-treated Air Filter with every window-type air conditioner cleaned and checked.

Result of this mailing: more than 200 service jobs!

Mr. Quiggin reports: "We feel that the FRAM Filter helped make the program a success."

You can boost *your* service business by installing and promoting FRAM permachem-treated Air Filters. Only FRAM Filters offer your customers all these benefits...

- Kill 99+% of bacteria, mold, mildew trapped in the filter!
- Keep air *hospital-clean*!
- Trap dust, dirt, pollen!
- Stop musty filter odors!
- Need no oil!
- Exclusive anchor-locked frame cannot settle, vibrate, blow or soak loose!

You can't miss with FRAM permachem-treated Air Filters. Write FRAM today for the full story.

service contractor gets more **ONE MAILING** featuring treated Air Filters!



Raymond Quiggin, Sr. (right) and Jr., owners of Quiggin & Son



Now! Boost your sales with New FRAM Merchandising Program for motels and hotels



1. Colorful metal outdoor sign



2. Lobby plaque



3. Room cards



4. Plus a complete selling presentation



FRAM Air Corporation

Division of FRAM Corporation, Providence 16, R.I.

WHAT'S HAPPENING . . .

(Continued from page 19)

Career Institute to Help Draw Young Men Into Air Conditioning

LOS ANGELES — Approximately 40 California high school juniors or seniors with outstanding academic records will be invited to attend a two-day air conditioning and refrigeration career institute to be held late in December at California State Polytechnic College's San Luis Obispo campus. Each student attending will receive a \$50 honorarium under a program set up by the Western Air Conditioning Industries Association. Selection of the students will be done by a committee composed of members of the college faculty.

Speakers will describe various phases of careers within or allied to air conditioning and refrigeration, one of Cal Poly's nine engineering majors at its San Luis Obispo campus.

"Advanced studies of air conditioning and refrigeration are vital to the nation's health and defense efforts. Further, air conditioning

is one of the West's fastest growing career fields," explained William P. Tennity, president of WACIA. "The great growth of the industry has created unprecedented demands for top young talent in the field. In association with Cal Poly, we plan to follow a broad professional approach which emphasizes the scientific, the sociological, mathematical, and personal, as well as the mechanical requirements and opportunities in the industry."

Harold P. Hayes, dean at Cal Poly, pointed out that "one of the most frequent types of engineering opportunities offered to our graduates is that of air conditioning engineering."

Manufacturers Reps Helping to Spread Silver Shield Story

CLEVELAND — Cooperation between manufacturers of heating and air conditioning products and the National Warm Air Heating and Air Conditioning Association's Silver Shield Program Committee has resulted in the setting up of a series of meetings where manufacturers' field representatives and executives are shown the same films and given the same explanations accorded dealer-contractors interested in establishing local Indoor Comfort bureaus.

It's expected that manufacturers' field representatives will carry the Silver Shield story to areas where such a program can help correct some of the problems now encountered by dealer-contractors who are trying to promote quality installations.

Study Air Force Heating Systems

(Continued from page 19)

control over natural variations brought about by differences in living patterns, houses were chosen with more than two and less than seven occupants. Meter readers will be requested to report any marked change in occupancy.

Another aspect of the program involves measurement of the heating characteristics and co-effi-

(Continued on page 26)

Festival of Flame To Highlight AGA Convention

NEW YORK CITY — More than 200 technical developments in gas utilization and gas industry operation will highlight the "Festival of Flame" exhibit at the American Gas Association's 42nd annual convention scheduled Oct. 9-12 in Atlantic City. Exhibits will occupy the entire 90,000 sq ft exposition hall, according to AGA.

Certain equipment categories, including gas air conditioners, have been deemed so important to the industry that each manufacturer in the field has been invited to exhibit one of his latest and most advanced models.

Exhibitors already signed up include: Arkla Air Conditioning Corp.; Bryant Mfg. Co.; Carrier Corp.; Comfort Products, Inc.; Controls Co. of America; International Register Co.; The Majestic Co. Inc.; Maxitrol Co.; Minneapolis-Honeywell Regulator Co.; Mt. Vernon Furnace & Mfg Co.; Perfection Industries, Div. of Hupp Corp.; Rheem Mfg. Co.; Robertshaw-Fulton Controls Co.; and Whirlpool Corp.

(More news on page 26)

Meet to Study Los Angeles Code

(Continued from page 19)

ing and Air Conditioning Industries, according to A. B. Wicks, code adviser for the institute.

The weekly sessions will begin Sept. 14 and continue each Wednesday thereafter until the closing session on Oct. 19.

Sessions will be held in Carpenter Hall, 7500 Van Nuys Blvd., from 7 to 10 p.m.

James Turner, senior heating inspector for Los Angeles, will conduct the sessions, which will cover the new code, its latest interpretations and amendments. Question and answer sessions will be held to help clarify the code.

GUARANTEED UNI-JUST ELBOWS

Guaranteed Adjustable

**Guaranteed
not to
Separate**



**Just right amount
of crimp
guarantees
maximum free
area yet easily
assembled**

**Uniform size
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**Competitively
priced**

We are so sure of the high quality of UNI-JUST WARM AIR ELBOWS, which are manufactured by a unique method, that we make this guarantee: "If a UNI-JUST ELBOW will not adjust or comes apart under normal installation conditions, return it to your wholesaler and we will replace it free of charge."

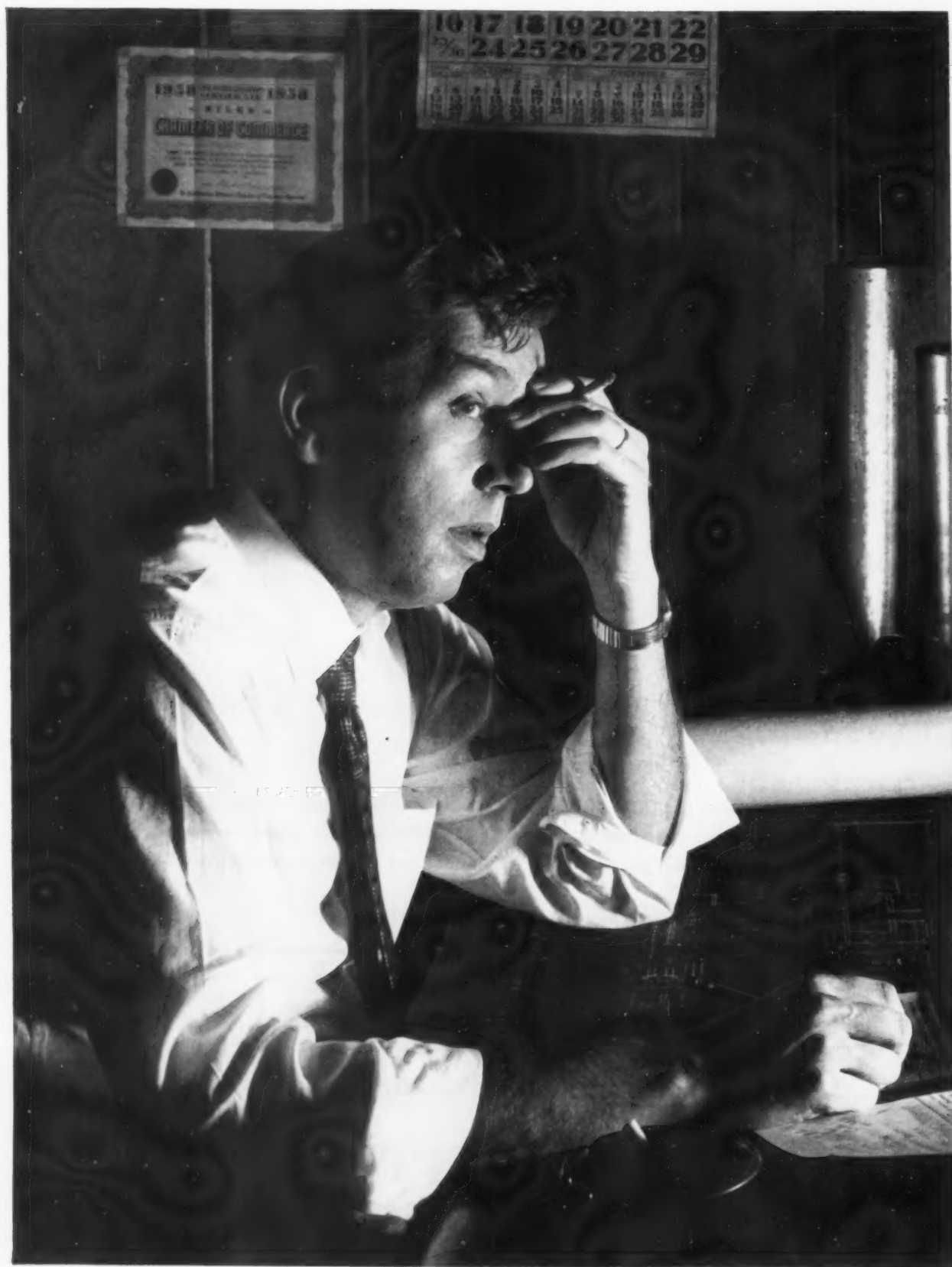
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What happens when the "honeymoon" is over?

Promises come a lot easier than fulfillment!

Heating and air conditioning dealers soon find that the paid vacations and other special inducements offered by different manufacturers fade into memory along with the rose-hued words of courtship. Suddenly you're faced with the stark reality of making money with the line you're handling. What then?

That's when the "ordinary" things become all-important... the backing you

get from the factory, the sales helps, the training schools for your men, freedom from shipping errors, the many ways a manufacturer can help you sell more efficiently and make more money.

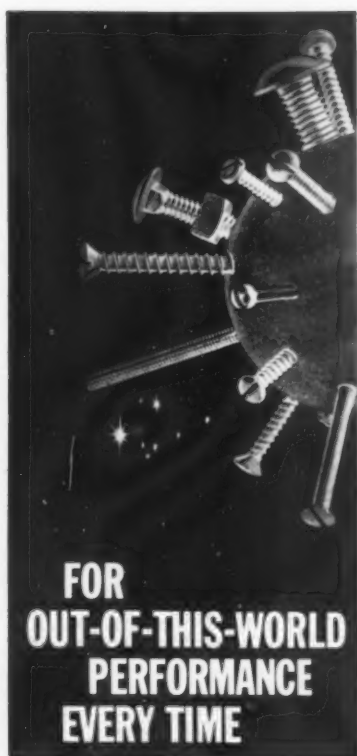
With Lennox there are no gimmicks, no verbal smoke screens or razzle-dazzle—just an honest effort to help our dealers make money the year 'round—every year.

If *you* want help instead of promises, it will pay you to investigate Lennox now. It's the line designed for the long pull.

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WHAT'S HAPPENING...

AF Studies Heating, Cooling Systems

(Continued from page 22)

cient of performance of the heat pump, as installed, for a range of outdoor temperatures. Measurements will be made of the heat loss of the home, the balance point between compressor capacity and house heat loss (with all heating components considered), the outdoor temperature near 70 F at which the heat pump first comes into operation, as well as the total amount of energy required from all sources to maintain comfort.

In the heat pump studies, careful separation of compressor energy and supplementary resistance heat will be made. Compressor energy, changing with a varying outdoor temperature, will be related to degree days as a possible tool for future design, and resistance heat will be carefully noted to determine realistic figures on the percentage of time resistance heat is actually used.

NFPA Publishes Incinerator Standard

BOSTON — Revised standard on the installation and operation of incinerators (NFPA No. 82) has been issued by the National Fire Protection Association. The standard was developed by the NFPA committee on chimneys and heating equipment under the chairmanship of E. W. Fowler, chief engineer of the National Board of Fire Underwriters. The 1960 edition includes changes on such features as the instruction to be provided for the operation of incinerators, screens or other protection, and a revised definition of material to be protected.

(More news on page 39)

YORK HEAT BOILERS

Equipped with special, factory-tested controls and improved heat-exchangers, covered by a 10-year guarantee, York-Heat Boilers provide quiet, dependable performance and lowest possible maintenance. These gas and oil-fired boilers also feature extra-large copper coils for an abundance of hot faucet water. Now available from 100,000 to 468,000 Btuh. Small sizes packaged.

YORK HEAT FURNACES

These units are known nation-wide for their top efficiency and economy. Multiple flue passages, special baffles and fluted-surface heat exchangers provide maximum heat transfer. Blowers are oversized and rubber mounted for smooth, quiet operation, with extra capacity for heating and cooling. Compact, decorative cabinets styled to meet today's smart appliance trend. Capacities from 81,000 to 205,000 Btuh, oil or gas-fired.

Limited number of protected territories still available. Write for full details today!

YORK- SHIPLEY, inc.

Pioneer and Specialists in Automatic Heat

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Furnaces to 4,750,000 Btuh

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A new standard of quality in Damper Control Hardware

A few examples of the new Ventlok® line

#635 3/8" VENTLOK DIAL REGULATOR. Made with a die cast core, and heavy gauge dial and handle. The smaller but similar #620 Dial Regulator accommodates 1/4" rod.



#641 VENTLOK SELF LOCKING REGULATOR. Interlocking teeth engage when nut is tightened. Available in 1/2" and 3/8" sizes.



#601 VENTLOK COUPLING. Designed to join two lengths of 3/8" hot rolled rod.



#603 VENTLOK BALL JOINT BRACKET. Designed for mounting on side of ducts to accommodate control rods of splitter dampers. Swivel action eliminates bind and distortion.



#640 HiVel VENTLOK SELF-LOCKING REGULATOR. One of the new VENTLOK damper controls designed just for use on high pressure systems. Available in 1/2" and 3/8" sizes.



#607 VENTLOK DAMPER END BEARING. Accommodates 3/8" hot rolled rod.



#666 VENTLOK CONCEALED DAMPER REGULATOR. Made for mounting in ceilings. Available in 1/2" and 3/8" sizes and with plain or chrome plated cover. The cover and base telescope allowing a 1/2" adjustment if desired.



Ventfabrics

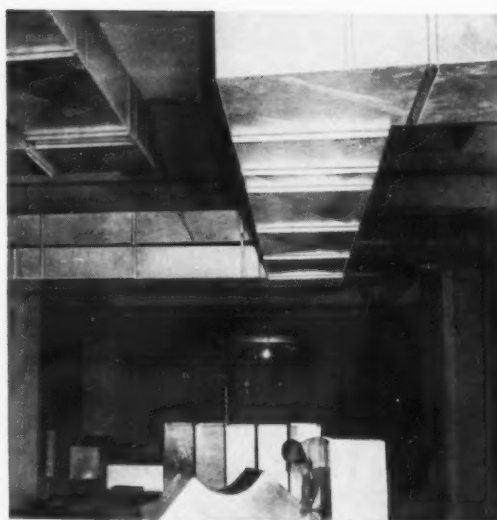
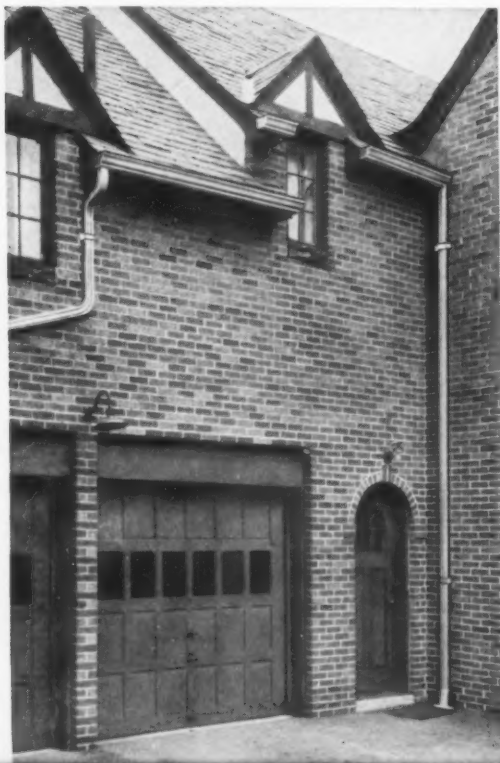
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REPUBLIC CONTINUOUS GALVANIZED SHEETS provide the rigidity and corrosion-resistance required for quiet, economical, trouble-free air conditioning and warm-air heating duct work. The tight, galvanized coating will not crack, flake, or peel, under any operation permitted by the base metal. Available from your local steel service center. Write for information.



REPUBLIC ROOF DRAINAGE PRODUCTS

...for fast... Low Cost installations

Save installation time and costs with Republic Gutters and Roof Drainage Products. They go up easy, go up fast, go up to stay! Every length is straight and true. And Republic "K" Gutter is available in lengths up to 32 feet long.

Precision manufacturing eliminates costly bends and bows. Formed of highest quality flat rolled steel, carefully checked on both sides to eliminate "thin spots" in the coating. Tight galvanized coating stays

on for years to provide vital protection and homeowner satisfaction.

Your Republic Roof Drainage Products distributor carries a complete line of everything you need in 24, 26, and 28 gage galvanized steel, 28 gage chrome-nickel stainless steel, terne (tin) or 16 oz. domestic copper, with perfectly matched accessories to further assure fast, low cost installations. Call him today, or write for additional information. Send coupon below.



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Manufacturers See Rise In Gas Equipment Sales

NEW YORK CITY — Most manufacturers of gas-fired equipment anticipate a rise in sales during the remainder of 1960, according to Edward R. Martin, director, marketing and statistics, Gas Appliance Manufacturers Association, Inc.

With regard to 1961 sales, the current manufacturers' consensus is that aggregate sales will increase 5.1 percent over 1960. Substantial increases are expected for all gas heating equipment except gas floor furnaces and unit heaters. The decrease in sales of floor furnaces is expected to be compensated for through increased sales of gas-fired vented recessed wall heaters. Sales of gas unit heaters in 1961 are expected to just about duplicate the sales of the present year.

Gas central heating equipment manufacturers expect 1960 sales to approximate 1,296,600 units, with sales during 1961 reflecting an upward trend and anticipated at 1,370,600 units.

Automatic gas water heater manufacturers expect 1960 sales to total 2,709,100 units. Unit sales in 1961 are expected to exceed 1960 sales and approximate 2,931,700 units.

Gas vented recessed wall heater sales in 1960 are expected to reach a total of 368,000 units, and sales of approximately 391,700 units are expected for the following year.

Gas floor furnace sales are expected to reach a total of 79,900 units this year and drop to 77,500 units next year.

Expenditures by gas utility and pipeline companies for new plants and facilities during 1960 are expected to reach a record-breaking

\$2.233 billion, according to the American Gas Association. The new record probably will not stand beyond 1963, AGA says, in summarizing an annual study prepared by its bureau of statistics. Expansion activities three years from now are expected to reach \$2.38 billion.

Offer Oil Heat Diamond Jubilee Sales Aids

NEW YORK CITY — Seventy-five years of central heating with oil will be celebrated during the week of Oct. 9-15, according to the Oil Heat Institute of America. OHI has prepared a special National Oil Heat Diamond Jubilee kit to aid local groups in their observances of the week.

Oil Heat Institute Conducts Survey Of Heating Oil Storage Tanks

NEW YORK CITY — At the request of its technical committee, the Oil Heat Institute of America recently conducted a survey covering various aspects in the life of heating oil storage tanks. According to Charles H. Burkhardt, OHI managing director, reports received covered 497,000 tanks with side openings and 122,000 with bottom openings.

The survey disclosed that of tanks with side openings, 1.17 percent failed each year as compared with 0.7 of 1 percent failures for tanks with bottom openings. Since

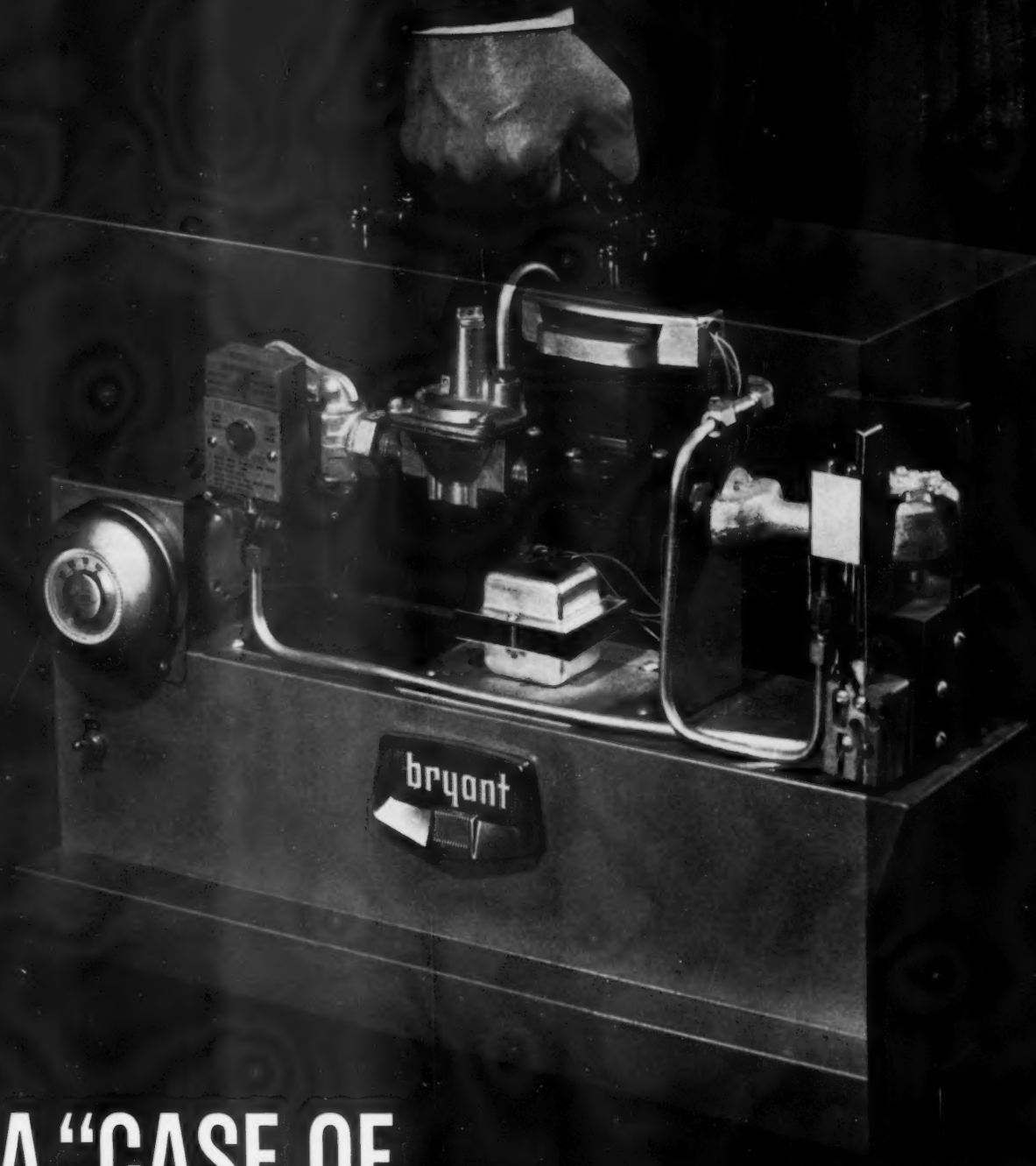
Use Conditioning Paragraph On Form A201

ATLANTA — A resolution recommending that members of the Sheet Metal, Roofing, Heating and Air Conditioning Contractors' Association of Georgia make use of a "conditioning" paragraph on all proposals, and contracts, whether bid, negotiated or direct-with-owner work, has been adopted by SMERO HACCA's executive committee. The recommended paragraph reads as follows:

"Conditioned: Except for longer written guarantees required, the seller's responsibility for correcting defects due to faulty materials or workmanship shall terminate one year from date of final acceptance, or owner's substantial usage, whichever is earlier. And, award of the work shall constitute buyer's acceptance hereof, notwithstanding any contrary provisions in the contract documents."

the average age of tanks with side openings reported on was 10 years while the average age of tanks with bottom openings was five years, OHI notes it is obvious that the age of tanks affects the rate of failure.

On the effect of water soluble corrosion inhibitors on tanks with side openings, 44 percent of the dealers with experience in this respect indicated that the use of inhibitors was beneficial; 9 percent indicated the reverse; and 47 percent of those reporting did not commit themselves on this point.



A "CASE OF SMART SELLING"....*worth looking into!*

You're "looking into" an exclusive Bryant selling help—The Bryant Furnace Demonstrator. With it, you can put on a "live" demonstration that shows how Bryant controls and burner work. Prospect "demonstrates to himself"—sells himself. It takes "price" and "we're not ready to buy" right out of the picture. Our dealers tell us that they're closing more sales on the first call and getting their price. Demonstrator works fine on boiler sales, too—Bryant controls are used on all Bryant products! Why not look into this "case of smart selling" and a dozen other reasons you'll be better off with Bryant. Call your Bryant Distributor or Branch today. Bryant Manufacturing Co., Indianapolis, Indiana. Bryant Manufacturing Ltd., Toronto, Ontario.

bryant



New science building requires complex heating and ventilating system

BETHCON galvanized steel for air ducts preferred by sheet metal superintendent

This is the new science building at Western Washington College of Education, in Bellingham, Wash. The constant presence of noxious fumes makes ventilation of this building an important factor. Equally vital is the precise control of temperature. An extensive system of ductwork was designed and installed to perform these functions, involving the use of many tons of Bethcon galvanized steel sheets for air supply.

"Excellent Lock-Forming Qualities"

The mechanical contractors, Diamond "B" Plumbing and Heating Co., were quite emphatic in their preference for Bethcon sheets. "We favor Bethcon," says Ken G. Peterson, sheet metal superintendent of Diamond "B" "because of its excellent lock-forming qualities."

Taken for granted was the superiority of gal-

vanized sheet steel over other materials sometimes used for ductwork. Steel's inherent strength permits the forming of light-weight, rigid ducts and other assemblies which require few supporting spans.

Ideal Blend of Stiffness and Ductility

You'll find that Bethcon is the ideal galvanized sheet for sheet-metal work. It has just the right balance of stiffness and ductility for easy forming and sturdy finished product. The secret lies in Bethlehem's continuous galvanizing process which includes a special annealing cycle. This galvanizing process also bonds the zinc so tightly to the steel that peeling and cracking are virtually eliminated.

You can specify Bethcon coiled or in sheets, in a wide variety of gages, in either plain open-hearth or copper-bearing steel. For specific details, simply call or write to the Bethlehem office nearest you, or write to the address below.



*for Strength
... Economy
... Versatility*

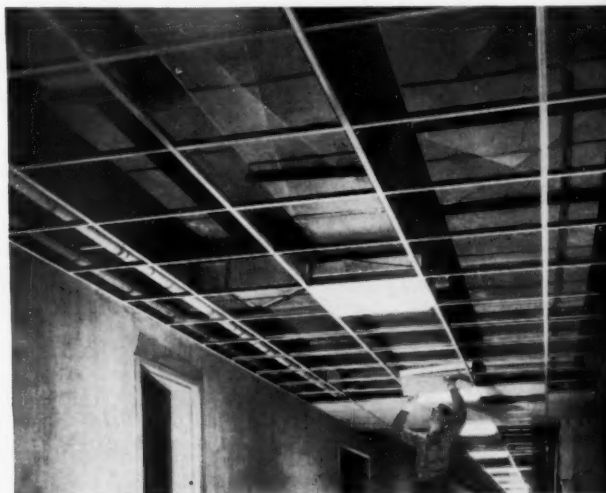
BETHLEHEM STEEL



New science building for Western Washington College of Education, Bellingham, Wash., completed in July 1960. Architect: Paul Thiry, F.A.I.A., Seattle; Mechanical Engineer: James B. Notkin, & Associates, Seattle; General Contractor: Hebb and Narodick Construction Co., Seattle; Mechanical Contractor: Diamond "B" Plumbing and Heating Co., Bellingham.



This maze of ducts was needed to handle the exacting temperature and humidity requirements, as well as the removal of a wide variety of fumes from classrooms and labs.



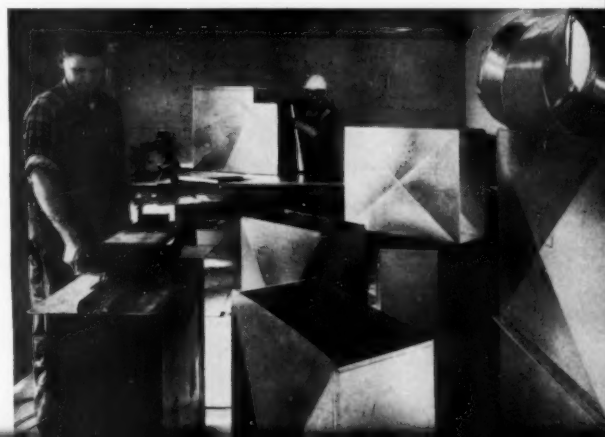
Only the strength and rigidity of galvanized steel sheets will permit such long spans of ductwork with so little need for support.

Superior lock-forming qualities led the mechanical contractors to insist on Bethcon galvanized sheets for the complex ventilating, heating and air-conditioning system.



BETHLEHEM STEEL COMPANY
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shearing, welding. Also a complete line of material-handling equipment and shop tools.

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How to Sell a Bid

WE'VE OFTEN HEARD the statement: "All you can do is bid the job and hope you're low." On the surface, this appears to be so. But when we talk with sheet metal contractors who seem to have plenty of work to do when things are slow for other contractors in the area, we find it is the jobs that are "sold" — not just bid — that keep contractors busy.

The question that sometimes arises is: "How can you sell a general contractor anything when what he wants is a low price?" The job is to show the general contractor that the bid submitted is the low bid when it's viewed in the proper perspective.

To help him see the overall picture, begin with offering more than what's asked for in the sheet metal specifications. Start with the initial air distribution system, examine it to see if it meets code requirements. Next, ask the question, "Will redesigning make it possible to eliminate some of the complicated fittings, bracing, hanging, etc., as well as provide a more versatile air circulation system?"

After an examination of what's needed, and when you have decided what will do the best job, make a brief sketch and a list showing the advantages of the proposed system. Lay this information to one side until the next two steps have been completed.

Step two begins with a complete review of the entire set of specifications. Jot down all sheet metal that may have been assigned to other contractors for bidding. For instance, metal fascia might be included in either the roofing or ornamental iron specifications.

Step three makes use of a complete list of benefits that come from doing business with your company. This list can show the range of insurance carried on personnel and property, financial responsibility, etc.

Step four is the bringing together of steps one, two and three into a formal proposal to be submitted at the designated time and place.

Step five is the sales step. It consists of sending an "Information Bulletin" to the general contractor, architect, mechanical consulting engineer, and building owner, outlining to each what your bid contains and requesting that they weigh these factors at the time the contract is awarded.

This bulletin should point out that work assigned to the sheet metal trade through labor jurisdiction can best be done through the sheet metal contractor as it reduces the possibility of jurisdictional disputes and work stoppage.

Bringing this information to the attention of those involved in the letting of contracts prior to the opening of bids not only prepares them for the bid submitted by your company but points up your business know-how and your thoughtfulness of the customer's welfare.





BEST WAY to utilize the Keetch company's specialty (staggered seamed ducts) is discussed by (l to r) M. A. Punchard, president, and Gilbert C. Dorsett, vice president

Special Fabrication Techniques Add Rigidity to Duct Systems

A system of staggered standing seams provide a rigid duct which often surpasses the job specifications written by consulting engineers and architects



"MECHANICAL ENGINEERING firms are always interested in learning about techniques that can result in lower installed cost of duct systems. They are doubly pleased when they are told about changes in specifications that not only make it possible to save time in fabrication and installation of

DETAILS of the duct plan are worked out between the general superintendent (left) Carl Miller, Gilbert C. Dorsett and job site foreman Benton McTaggart

PANELS for duct section are trimmed to size according to a detailed schedule at a special ductwork table



ductwork, but also result in sturdier ducts," says Gilbert C. Dorsett, Keetch Sheet Metal Works, Dallas.

The Keetch company, which has plants in both Dallas and Ft. Worth, has made a specialty of duct fabrication and in so doing has developed a system of staggered standing seams that provide a rigid duct which meets and often surpasses the requirements of many other duct specifications.

The result is a lower installed cost to the customer because larger sections are fabricated at the shop, cutting down on the assembly time at the job site.

Select Best System for Job

This technique is a direct result of experiences of M. A. Punchard, president of the two companies, and Gilbert C. Dorsett, vice president and manager of the Dallas operation, who get together when requests for bids on systems requiring large quantities of ductwork are received. This begins with a conference where the plans are carefully scrutinized for effective use of maximum lengths of ductwork sections during the various stages of construction.

Once the plan has been determined, the work is turned over to the general superintendent and job site foreman, who work out

the details and draw up duct schedules.

Schedules Speed Operation

These schedules are passed along to the shop crew, which shears the number of pieces of metal required at a bench specially designed for handling duct panels. From this bench the panel is moved to a notching machine located at the end of the bench. From this point, the duct panel proceeds to the hand brake, where it is crossbraked and then moved to a standing seam machine.

After this operation, the duct panels are joined together in the

pre-determined duct section length. Standing seams are button punched where the duct panels are joined to hold them securely in position.

Fabricating Duct Panels

In fabricating the duct section panels, the two side panels of the duct are fabricated so that the standing seams on the side will fall midway between the standing seams holding the top and bottom panels together.

Side panels are fabricated from four separate panels. Three standing seams are formed with one end panel having a 90 deg bend



POWERED EQUIPMENT notches duct panels to speed fabrication



SMALL PANELS are crossbraked to provide rigidity and then put through a standing seam forming machine. Panels are assembled and button punched to provide permanently tight joints

outward. (This bend is used as the connecting lip when inserted into an adjoining section's pocket lock.)

The top and bottom sections are fabricated from three separate panels forming two standing seams, with one end panel having a 90 deg angle turned for use in inserting the duct section panel in the completed lock of an adjoining duct section.

Assemble Sections on Frame

To form a duct section, two side panels and a top and bottom

panel are withdrawn from a stack located near the assembly area. Two mechanics use a specially made angle iron frame to assemble the two side panels to a top panel.

As stated previously, in the pre-fabricating of the panels, standing seams on the side are staggered to fall midway between the standing seams fabricated into the top and bottom panels. The two side panels are attached through Pittsburgh lock seams to the top panel. The top panel rests on the angle iron frame which is adjusted to be the same height above the floor as

the top edge of the side panel.

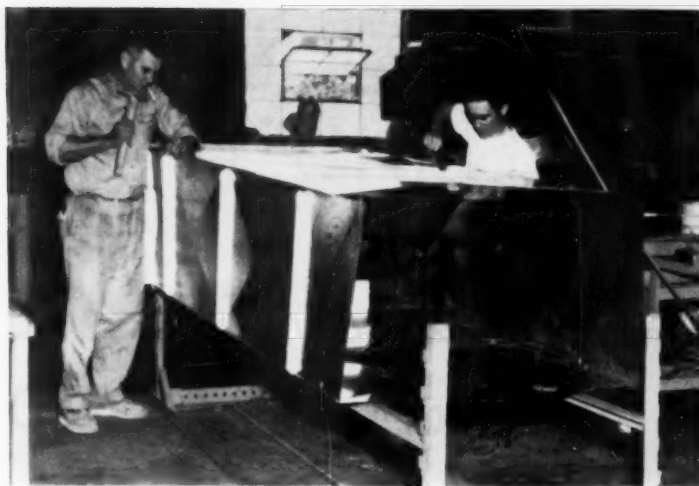
Once the Pittsburgh lock has been hammered down, the three sided duct section is turned over and rested on top of the angle iron frame. Another wide panel is then attached to the two side panels through the use of Pittsburgh lock seams.

Rigidity is added to the completed duct section by the attachment of a pocket lock, which has been fabricated in another section of the shop. The pocket lock is driven onto the end of the duct section and button punched into position.



AN EIGHT FOOT side panel with three standing seams is inspected by shop foreman J. G. Simonton

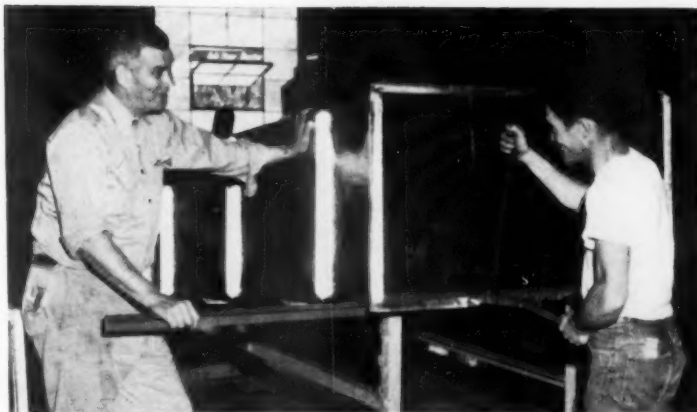
PANELS ARE ASSEMBLED to form a duct with staggered standing seams. Duct has three standing seams on the side, and two standing seams on the top and bottom



Special dies are used for punching pocket lock blanks to meet the required duct dimensions. The blanks are then taken to a power press brake where special dies are used to form the pocket lock.

Components of the pocket lock are then assembled in a jig while the joints are spot welded to form true 90 deg angles at each corner.

Ductwork is but one of the specialties of the Keetch company. It has fabricated many custom made stainless steel products, such as custom made stainless steel cabinets, benches, chutes, etc.



COMPLETED DUCT SECTION is fitted with a pocket lock which is button punched to hold it permanently and rigidly in place

OTHER SPECIALTIES of the company include custom made stainless steel products such as this inside barbecue kit, vent hood and cabinet of 302 #3 finish 18 ga stainless steel



HUGH REID'S SHEET METAL PATTERN

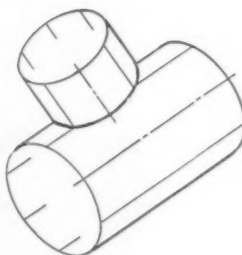
How to Develop:

Two Pipes of Unequal Diameter Intersecting at 90 Degrees

All true length lines required to lay out both patterns can be constructed on a half end view drawing, and any addition to the drawing would be a repetition of identical lines

Can you develop this pattern in 20 minutes?

Here's a new and accurate approach to the development of sheet metal patterns that will cut costly layout time. The method applied to this month's fitting can be used as a guide to develop related patterns and solve other problems encountered at the layout bench



THE TEE JOINT is used extensively both in industrial ventilating and residential gravity heating systems. This fitting is not too suitable for use in high velocity exhaust systems because of the high entrance loss at the main duct connection.

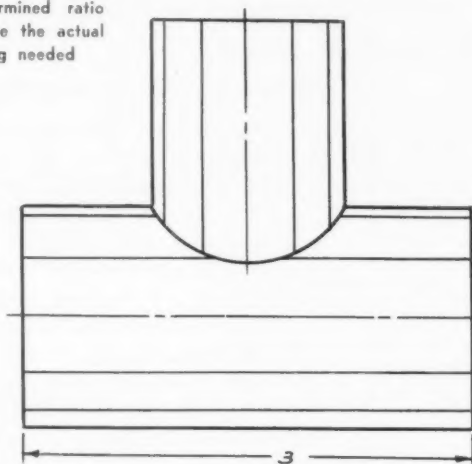
In making a study of the problem to determine the practical shop method of layout, it is noted from

the front and end drawings (Fig. 1 and 2) that the fitting is symmetrical about the vertical center line on both views.

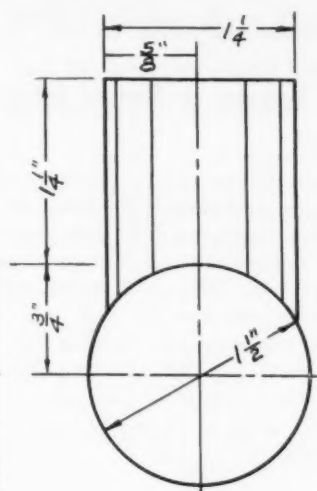
From this analysis it is quite evident that all the true length lines required to lay out both patterns can be constructed on a half end view drawing.

Any addition to the half end view drawing would

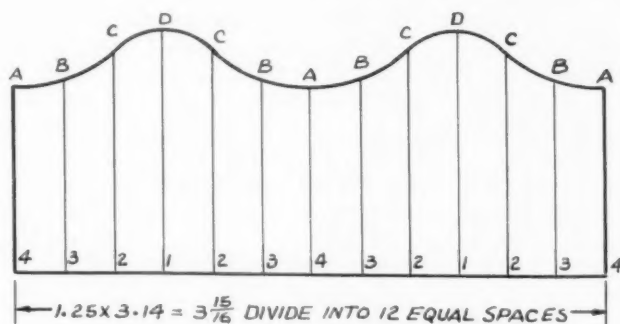
NOTE: THESE PATTERN dimensions should be multiplied by the predetermined ratio figure to produce the actual size of the fitting needed



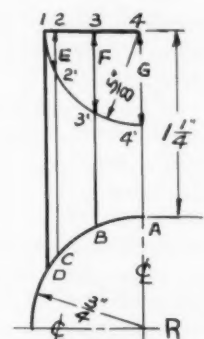
1 Front View



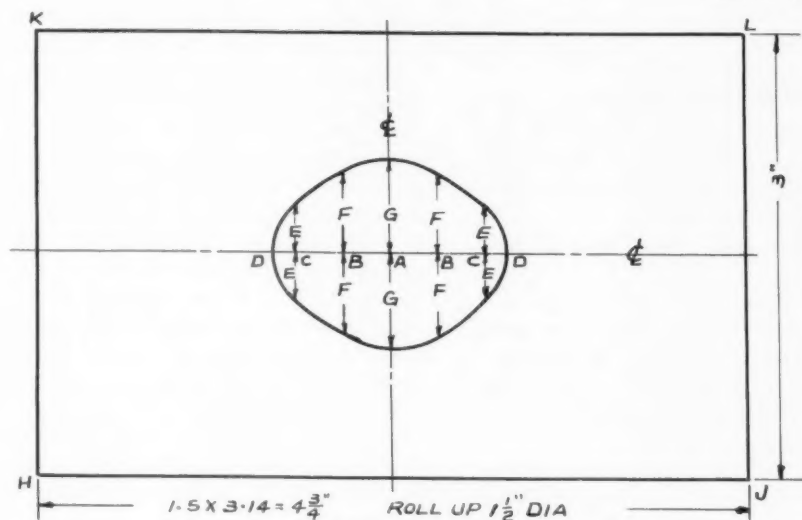
2 End View



4 Intersecting Pipe Pattern



3 Simplified Method Drawing



5 Pipe & Cut-Out Development Pattern

Pattern Next Month —

Square to Round Fitting

Since space or the lack of it is an important factor in most sheet metal shops and square to round hoods are often quite large in size, two approaches will be presented next month in our study to determine the practical shop procedure of layout.

Both methods are presented for reasons of clarity, and will give identical results. Once one method is understood, you can use the alternate method for standard shop practices.

be a repetition of identical lines which would be a waste of effort and shop time.

The cutout shape for the smaller duct may be developed per Fig. 5, or both sections of the duct can be fabricated and the smaller placed in its correct position on the larger, and the opening in the duct marked for cutting.

When 18 ga or heavier sheet metal is used for fabrication, the fitting joints would be welded. With lighter than 18 ga metal, the joints would be riveted.

The time required to lay out this fitting should not exceed 20 minutes.

Given the front and end views of two pipes of unequal diameter intersecting at 90 deg, the following is a step-by-step analysis of the pattern problem solution.

Simplified Method Drawing, Fig. 3—

a) Draw the vertical center line marked CL and at the base of this line establish point R. Above point R, measure the given $\frac{3}{4}$ in. and $1\frac{1}{4}$ in. dimensions and mark the points as A and 4.

b) With point R as center and radius R-A, draw a 90 deg arc to the left.

c) From point 4 draw a line to the left and perpendicular to the center line R-4. Measure the given $\frac{5}{8}$ in. radius to the left of point 4 on the horizontal line and locate point 1. With point 4 as center and radius 4-1, draw a 90 deg arc to intersect the center line. Mark this intersection as point 4'.

d) Divide the arc 1-4' into three equal spaces and number the intermediate points as 2' and 3'. From points 2' and 3' draw lines perpendicular to and intersecting line 1-4. Mark the intersecting points as 2 and 3. From points 1, 2 and 3 draw lines downward

and parallel to line 4-R to intersect the lower arc. Mark the intersections as points B, C and D. Mark the lengths from line 1-4 to points 2', 3', 4' as line lengths E, F and G.

Intersection Pipe Pattern, Fig. 4—

a) Calculate the intersecting pipe circumference by multiplying the given $1\frac{1}{4}$ in. diameter (Fig. 2) by 3.14. Thus 3.14 times 1.25 equals 3 $\frac{15}{16}$ inches.

b) Draw a 3 $\frac{15}{16}$ in. horizontal line. Mark both extremity points with the figure 4. Divide the line into 12 equal spaces and mark the points as 4, 3, 2, 1, 2, 3, 4, 3, 2, 1, 2, 3 and 4. From all points draw lines above and perpendicular to line 4-4.

c) Working from Fig. 3, transfer line length 4-A to the three lines identified at their base with the figure 4. Mark the top of these lines as points A. Set a compass at line length 3-B (Fig. 3), and at all four points marked 3 (Fig. 4) draw arcs across the vertical lines with the figure 3 at their base. Locate points B where the arc made its intersection.

d) With line length 2-C (Fig. 3) as radius and at all four points marked 2 (Fig. 4), draw arcs across the vertical lines with the figure 2 at their base. Locate points C where the arc made its intersection. Transfer line length 1-D from Fig. 3 to the two vertical lines with the figure 1 at its base (Fig. 4), and mark the points as D.

Development Pattern, Fig. 5—

a) Calculate the $1\frac{1}{2}$ in. pipe circumference by multiplying the diameter by 3.14. Thus 3.14 times 1.5 equals $4\frac{3}{4}$ inches.

b) Draw a $4\frac{3}{4}$ in. horizontal line and mark the extremity points as H and J. From both points draw lines perpendicular to line H-J, measure the given 3 in. length on both lines and locate points K and L. Draw a line connecting the points.

c) Above points H and J measure $1\frac{1}{2}$ in. and draw the horizontal center line. Mark it CL. From points H and K measure $2\frac{3}{8}$ in. to the right and through the points draw the vertical center line. Mark it CL. Mark the intersection of both center lines as point A. Transfer arc lengths A-B, B-C and C-D from Fig. 3 to the right and left of point A (Fig. 4). Mark these points as B, C and D. Through points A, B and C draw vertical lines extending above and below the horizontal center line.

d) From Fig. 3, transfer line length G above and below point A (Fig. 4). Transfer line length F (Fig. 3) above and below both points B (Fig. 4). Transfer line length E (Fig. 3) above and below both points C (Fig. 4).

Through the developed points draw the pattern outlines and mark the patterns for fabrication.

Ductwork Tables Establish Fabrication Costs

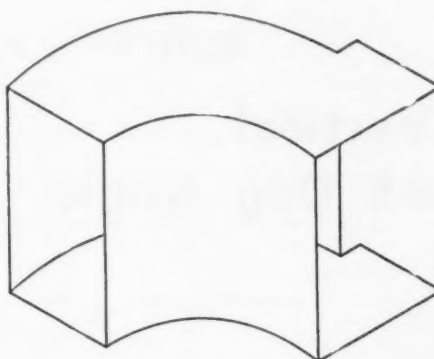
... when used to estimate weight and time required for complete low velocity air distribution system

SOMEWHERE IN THE PROCESS of converting any given set of engineering plans into a finished and operating central air conditioning

system, the sheet metal contractor must face the problem of estimating the weight of galvanized sheet metal and the amount of labor

required to fabricate the ductwork ready for hanging. This fabricating cost, added to the cost of labor required for erection,

Side Takeoffs



Depth of duct		7 in.		8 in.		9 in.		10 in.		12 in.	
Width of branch	Reduction in size of main trunk	Weight	Time	Weight	Time	Weight	Time	Weight	Time	Weight	Time
16 in.	12 in.	10.3	50	10.7	50						
14 in.	10 in.	8.2	45	8.5	45	8.8	45				
12 in.	9 in.					6.9	45				
12 in.	8 in.	6.4	45	6.7	45			7.2	45		
12 in.	7 in.							6.5	45		
10 in.	7 in.	5.0	40	5.3	40	5.6	40				
10 in.	6 in.							5.9	40	6.4	40
9 in.	6 in.	4.9	40	5.2	40	5.4	40				
9 in.	5 in.							5.6	50	5.9	40
8 in.	5 in.	4.5	35	4.8	35	5.1	35				
8 in.	4 in.							5.5	35	5.1	35
7 in.	4 in.	3.9	35	4.1	35	4.2	35	4.4	35	4.8	35
6 in.	4 in.	3.2	30	3.4	30						
6 in.	3 in.							3.7	30	4.0	30
5 in.	3 in.	2.7	30	2.6	30	2.9	30				
5 in.	2 in.							3.1	30	3.3	30
4 in.	2 in.	2.1	30	2.2	30	2.2	30	2.4	30		

Weight given in pounds

Time shown in minutes

Save These Pages

Each month additional pages will be published and upon completion of the entire set of 27 tables a sample problem will be worked out in detail.

represents the net cost of the metal work to which must be added overhead and all other expenses, plus profit, to arrive at the selling price of the metal work connected with the installation.

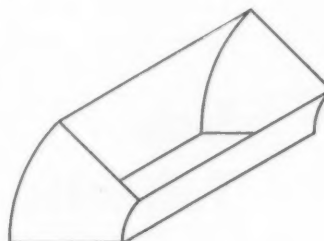
The tables published on this and following pages are part of a set of ductwork estimating tables that were reviewed and revised in

1959 to represent current practices in modern sheet metal shops. The revision was handled by Darwin A. Downing, Head Apprentice Teacher, Sheet Metal Apprentice Training School, Detroit. After revision, the tables were reviewed by E. B. Root, now a consulting engineer in Birmingham, Mich. who prepared the original set of

ductwork estimating tables that were published in 1947.

Other tables in this series have been published by American Artisan each month since April 1960. Additional tables are scheduled for future issues. Upon completion of the series, a sample problem will be worked out.

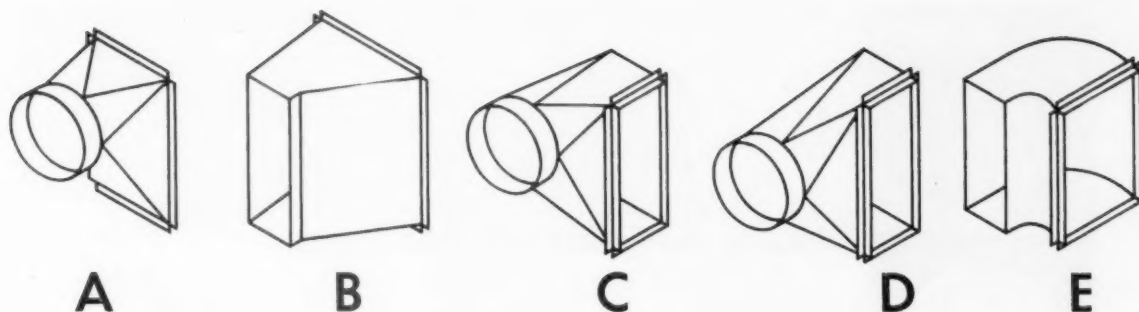
Vertical 45 Deg Angle



Depth of duct	7 in.		8 in.		9 in.		10 in.		12 in.	
	Weight	Time	Weight	Time	Weight	Time	Weight	Time	Weight	Time
44	7.0	80	7.6	80	8.1	80	8.6	80	9.7	80
42	6.8	80	7.3	80	7.9	80	8.4	80	9.4	80
40	6.6	80	7.1	80	7.6	80	8.1	80	9.1	80
38	6.3	75	6.8	75	7.3	75	7.8	75	8.8	75
36	6.0	75	6.5	75	7.0	75	7.5	75	8.5	75
34	5.8	75	6.3	75	6.8	75	7.2	75	8.2	75
32	5.5	65	6.0	65	6.5	65	6.9	65	7.9	65
30	4.1	60	4.4	60	4.8	60	5.2	60	5.9	60
28	3.9	55	4.2	55	4.6	55	4.9	55	5.6	55
26	3.7	50	4.0	50	4.3	50	4.7	50	5.4	50
24	3.6	50	3.8	50	4.1	50	4.5	50	5.2	50
22	3.4	45	3.6	45	3.9	45	4.3	45	4.9	45
20	3.2	45	3.4	45	3.7	45	4.0	45	4.7	45
18	3.0	40	3.2	40	3.5	40	3.8	40	4.4	40
16	2.8	35	3.0	35	3.3	35	3.6	35	4.2	35
14	2.6	35	2.8	35	3.0	35	3.4	35	3.9	35
12	2.4	35	2.6	35	2.8	35	3.1	35	3.7	35
10	2.2	30	2.4	30	2.6	30	2.9	30	3.4	30
9	2.0	30	2.2	30	2.4	30	2.7	30	3.2	30
8	1.8	30	2.0	30	2.2	30	2.5	30	3.0	30
7	1.6	30	1.8	30	2.0	30	2.2	30	2.7	30
6	1.4	30	1.6	30	1.8	30	2.0	30	2.5	30
5	1.2	30	1.4	30	1.5	30	1.8	30	2.2	30
4	1.0	25	1.2	25	1.3	25	1.6	25	2.0	25

Weight given in pounds

Time shown in minutes



Extended Plenum Fittings

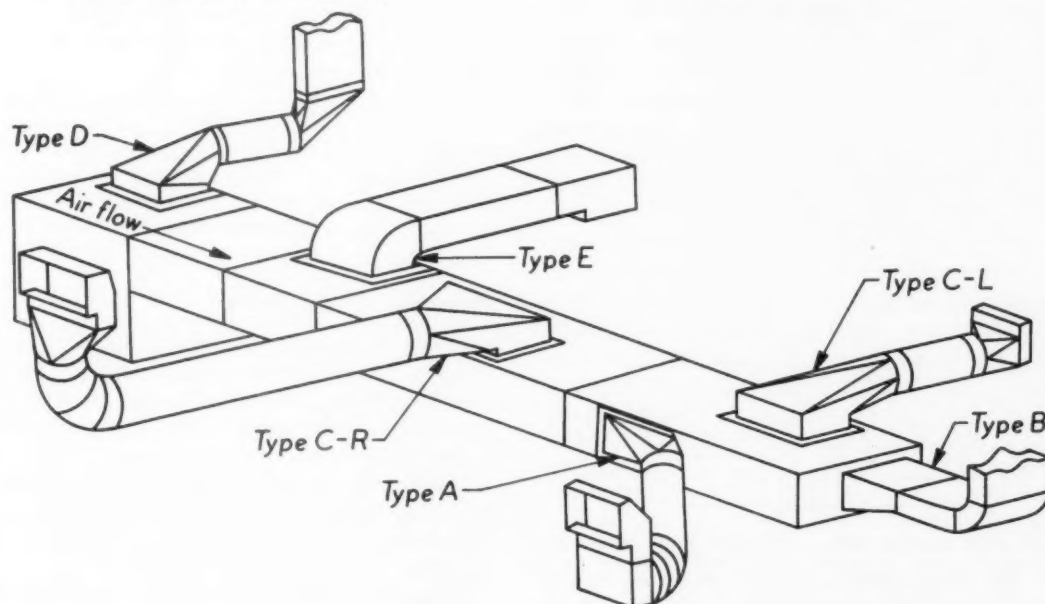
Fitting		Type A		Type B		Type C		Type D		Type E	
Branch duct in in.	Trunk duct in in.	Weight	Time	Weight	Time	Weight	Time	Weight	Time	Weight	Time
4	4 1/2 x 6	1 1/4	20			1 1/2	20			1 1/2	20
5	4 1/2 x 9	1 1/4	20			1 1/2	20			1 1/2	20
6	6 1/2 x 10	1 1/2	20			2	25			2	25
7	6 1/2 x 12	1 1/2	25			2	25			2	25
8	6 1/2 x 14	1 1/2	25			2	25			2	25
3 1/4 x 10	6 1/4 x 10			1 1/2	20			2 1/2	25		
3 1/4 x 12	6 1/4 x 12			1 1/2	20			2 1/2	25		
3 1/4 x 14	6 1/4 x 14			1 1/2	20			2 1/2	25		

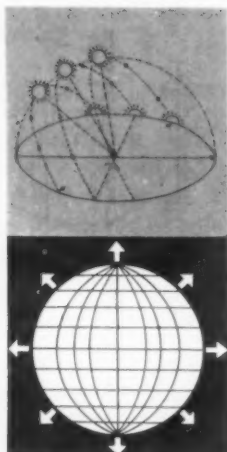
Weight given in pounds

Time shown in minutes

Example of where various extended plenum takeoff fittings may be used most effectively and with minimum resistance to air flow in a residential air supply system.

Types C-R and C-L represent the use of fitting C in either its righthand or lefthand application in relation to the direction of air flow.





Heating and Cooling with Solar Energy

Utilization of Solar Energy Moves Toward Economic Application

Increased demands made on our depleting reserves of gas, oil and coal have prompted scientists to look for other sources of fuel. These facts show why solar heating might be considered a practical and economical solution to this problem.

By Richard C. Jordan
Head, Dept. of Mechanical Engineering
University of Minnesota
Institute of Technology

WITHIN MOST REGIONS of the United States solar space heating is technically feasible but economically marginal. It would at first appear that the use of solar energy for space heating should be both cheap and simple since the quantities of energy available are vast and widespread.

The total solar energy striking the land area of

Information presented here is summarized from "The Future of Solar Heating" as presented by Richard C. Jordan Nov. 17, 1959 at the Building Research Institute's meeting on New Heating Techniques.

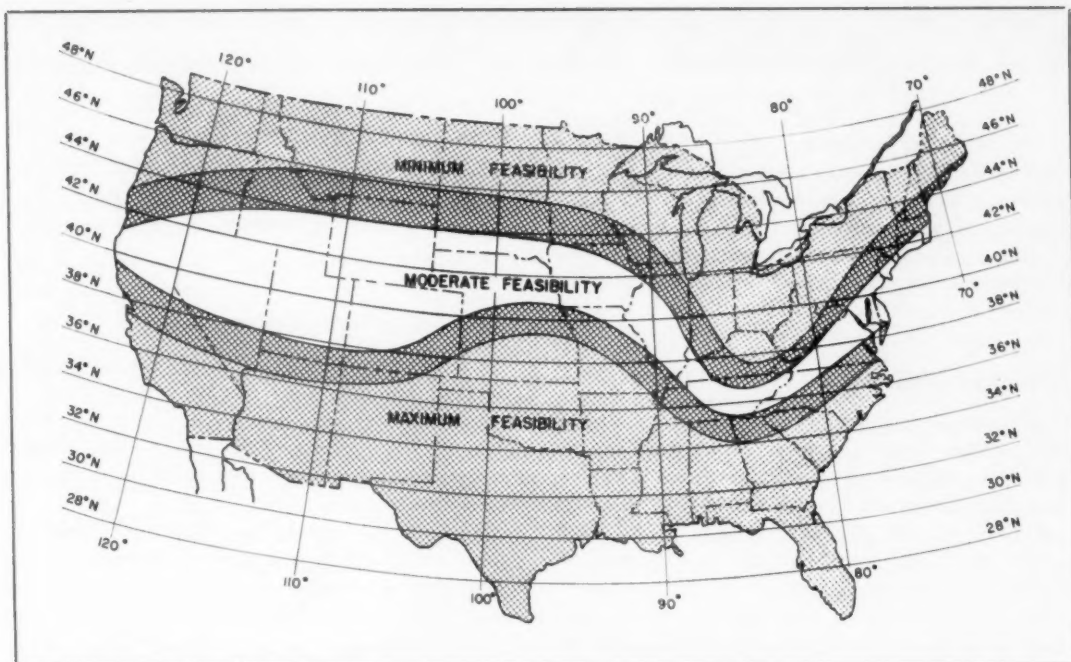
the United States is in the order of 313,000 kwh per person per day. The amount striking the roof of an ordinary house in the southern part of the country averages roughly 2,000,000 Btu per day.

Economics of Solar Energy

Although solar energy is free for the taking, it is expensive to collect and to store. It is so diffusely spread that large collection areas must be involved, and it is so variably available that for space heating it must be stored and supplied upon demand.

Engineering solutions to these problems require heavy expenditures for equipment, and the cost of solar heating is in the amortization and upkeep of the system.

Architectural concessions must be made, and it



1 Availability of solar radiation in various areas of the country and relative winter demand are broken down into zones to show solar energy heat sources for heat pump space heating systems

is only recently that the public has given limited acceptance to architectural designs which would permit the incorporation of the large solar collector surfaces.

Despite the marginal economy of solar space heating at the present time, the future is relatively bright. One has but to review the trends of the costs of fossil fuels during the past several decades as well as the extent of our stored energy reserves to conclude that in all probability the costs of oil and gas will continue to rise, particularly in relation to the cost of electricity. Parallel with this, the cost of solar collection and storage equipment is continually lowering.

Future of Heat Pump Systems

In the future the greatest competitor to solar heating may be electric heating. High voltage, long distance electric transmission systems will make more feasible the use of extensive solid fuels deposits, and nuclear fuels may be used for electric power generation without the intermediary of steam generation.

If this proves to be true, electricity may well be the dominant source of energy for space heating. However, increasing standards of living may require that space heating be coupled with space cooling to provide year 'round comfort.

Barring the development of economic, large scale thermoelectric cooling, this may best be accomplished

with vapor compression or absorption heat pump systems. At the same time, the use of solar energy as a total or partial heat source for the heat pump will make heat pumps more feasible to operate, particularly in northern climates.

Availability of Solar Energy

One of the most serious inherent limitations in the utilization of solar energy for engineering purposes is the intermittent nature of the energy source.

The variations are not only geographical, diurnal and seasonable in a predictable way, but the energy also varies with cloud cover in a manner which can be anticipated only statistically. Even with no cloud cover the direct solar beam in passing through the atmosphere is reduced by the mass of the atmosphere, by Rayleigh scattering, by water vapor scattering, by dust particle scattering, and by ozone absorption.

A typical variation of precipitable water in a basic atmosphere will range from 0.3 of an inch in the winter months to 1.2 in the summer months. The precipitable water vapor found in the Rocky Mountain area or in the northern part of the Midwest is comparatively low, and this in turn increases markedly the available radiation.

It is these factors which make the prediction of the solar energy source so complicated and the use of a heat storage media for use between the periods of reasonable solar availability so necessary.

"Several areas of research and design activity associated with solar collectors may lead to an increased quantity of heat collected per dollar cost of collector"

The optimum orientation of a solar collecting surface would be one which was continually changed so that it is always perpendicular to the sun's rays. Mechanical and architectural considerations make this impractical for space heating, although a stationary vertical surface or a tilted surface can usually be incorporated into the design.

Solar Radiation Zones

It is difficult at this point in our knowledge to make a completely meaningful estimate of the zones of minimum, moderate, and maximum feasibility for the utilization of solar radiation for space heating.

Fig. 1 attempts to illustrate solar energy heat sources for heat pump space heating systems, although the zones are admittedly approximate since a considerable degree of judgment was exercised in their assignment. The figure was constructed from knowledge of the availability of radiation in the various areas of the country as well as the relative winter heating demand.

The dip in the zone of minimum feasibility to the south and east of the Great Lakes as well as in the Pacific Northwest was due to the low amount of solar radiation in winter resulting from excessive cloudiness. The peak of maximum feasibility in the Midwest is caused by the relatively large amount of solar insolation available in winter.

Collecting Surfaces

Once the degree of solar energy availability and predictability is determined, solar energy collectors must be designed to permit the energy collection and storage for heating purposes. Concentrating collectors permit the attaining of high temperatures but they also have high thermal losses, and since they must be continually focused, they are inherently difficult to adapt to space heating.

A much cheaper and more satisfactory solution is the use of flat plate solar collectors with a fixed orientation to take maximum advantage of the available flux at a time when the heating demands are likely to be greatest.

As indicated in Fig. 1, the maximum radiation incident upon a south facing vertical surface at 42 deg north latitude provides maximum availability in late December and early January. Optimum availability is obtained in the portion of the winter normally coldest if the collectors are orientated south and tilted to an angle equal to the latitude plus approximately 15 degrees.

The winter solstice is favored if the collector is tilted to an angle equal to the latitude plus 23 degrees. Architectural considerations often make south orientated vertical surfaces the most satisfactory compromise.

Types of Collector Designs

Flat plate collectors are inherently simple devices for both the collection of solar energy and heat exchange to a working medium such as air or water. Fig. 2 shows six types of flat plate collector designs, three using water as the heat transfer medium and three using air.

These devices consist basically of blackened surfaces which will permit a high absorption of the impinging solar radiation, glass or plastic bounding surfaces on the side facing the solar flux, and some type of insulated container to reduce losses from the collector assembly. The glass or plastic should be highly transparent to the incoming solar radiation but comparatively opaque to the low temperature reradiation from the absorber plates so that the collector may act as a heat trap.

If the heat exchange fluid is water, it is usually circulated through tubing attached to or incorporated into the plate assembly. If air is the collecting medium, it must pass through an area directly adjacent to the collector surfaces.

The amount of solar energy which can be collected by such a device varies with the location but increases as the collection temperature decreases.

Actual experimental collectors using a collection temperature of 100 F and located at such points as Boston, Mass.; Madison, Wis.; and Minneapolis, Minn. have shown average winter solar energy collection varying between about 10,000 Btu per sq ft per month to 15,000 Btu per sq ft per month.

Costs Involved

At the present time, solar plate collectors used for space heating cost approximately \$2 to \$3 per sq ft. Such collectors incorporate two or three glass or plastic cover surfaces transparent to solar radiation. The total weight averages two to six lb per sq ft.

To a great extent the economic utilization of solar radiation for space heating is dependent upon reducing these costs and increasing the efficiencies of collection. It seems probable that eventually the cost can be reduced to approximately \$1 per sq ft or less.

However, it must be recognized that the amortiza-

tion of the original capital cost is not the only cost involved. Pumping costs for circulation to the collecting fluid must also be given consideration, and maintenance costs must also be included.

Increase Heat Collection

There are several areas of research and design activity associated with solar collectors which may lead to an increased quantity of heat collected per dollar cost collector.

First, the cost of the collector itself may be reduced by mass production and by the use of materials which will reduce the fabricating cost.

For example, plastic materials transparent to solar radiation may be developed which are cheaper than glass and have equally satisfactory high solar radiation transmission characteristics and low temperature reradiation characteristics.

Copper and aluminum flat plate absorbing surfaces have been developed which include heat exchange tubing. These are available in different configurations as an integral part of the plate and this eliminates the costly independent fabrication of plates and tubes and the bonding of the two.

Improve Collector Efficiency

The second factor involved in increasing the heat absorption per unit cost of collector surface is the efficiency of the collector itself. Here, three major

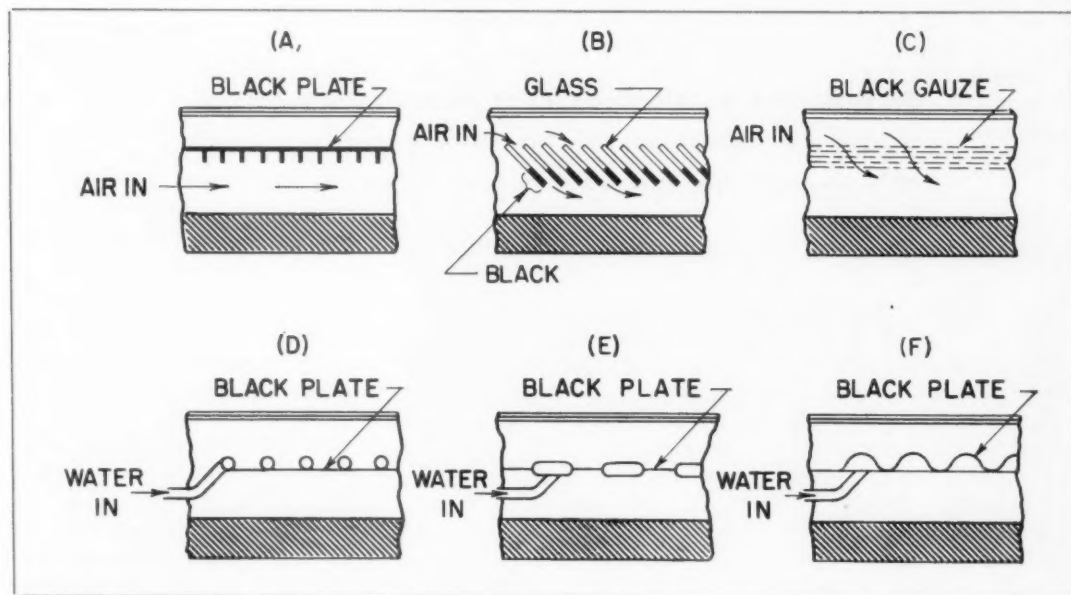
possibilities for improvement exist. The first of these concerns the development of stable surface treatments which can be applied to glass or to other solar transparent bounding surfaces in order to reduce the amount of energy reflected at high angles of solar incidence.

A second possibility concerns the use of selective collector surfaces which will have a very high absorptivity for short wave length solar radiation but a low emissivity for the low temperature, long wave length, energy reradiated from the collector plate.

The most important development in the area is that of Tabor of the National Physical Laboratory of Israel who has reported surfaces with 90 percent absorptivity for solar radiation and emissivities of 10 percent for the reradiated energy.

The third possibility concerns the use of secondary reflector surfaces in conjunction with flat plate collectors. Surfaces designed to make use of the ground area in front of a vertical collector or secondary vertical baffles rotated to make use of adjacent space can increase the available radiation by as much as 10 to 50 percent.

Main components of a solar energy heating system together with possible combinations by which these may be integrated will be presented in the October American Artisan. The author will explain how the integration of solar energy into the heat pump system increases the efficiency of the system because it can be used both as a heating and cooling unit.



2 Six types of flat plate collectors for collection of solar energy and heat exchange to a working medium such as air or water consist basically of blackened surfaces which permit a high absorption of impinging solar radiation, glass or plastic bounding surfaces on the side facing the solar flux, and some type of insulated container



OUTSIDE supply and discharge air was handled through weather-proof louvers and ducts connected to the opening originally used to move the heat pump into the attic

Heat Pump Solves Comfort Problem Faced by Purchasers of a New House

By installing an air-to-air heat pump this dealer-contractor was able to provide his customer with a comfortable environment and relief from an asthmatic and sinus condition

WINTER WEATHER proved the need for modifying a radiant hot water system that a builder had installed in a new home purchased by Mr. and Mrs. A. Wallen, Selinsgrove, Pa.

The homeowner also wanted central summer air conditioning equipment installed to provide both a comfortable environment and relief for an asthmatic and sinus condition.

To find help for their problems, they went to see Fred O'Donnell of B. O. Daubert, heating and air conditioning dealer-contractor in Selinsgrove.

Solution to Problem

After listening to the Wallens' problems, Mr. O'Donnell asked if he could make a thorough evaluation of the home.

After a survey, he weighed the wishes expressed by the Wallens, considered the costs of operating their present system and the work required to modernize the system and decided on a year 'round air-to-air heat pump to provide both summer and winter comfort. He also proposed that the present hydronic heating system be used as a source of supplementary heat.

Adding year 'round air condi-

DIFFUSERS were located nearer outside walls rather than in a central ceiling location to achieve a perimeter air distribution system



tioning to an existing house not equipped with a basement leaves very little choice as to duct, diffuser and equipment location. The attic had to be used for both equipment and ducts. Ceiling locations, near the outside walls, were selected for diffusers.

Additional Support

Before placing the heat pump in the attic, a wooden platform was added to provide additional support for the equipment. Sound absorbing pads were installed to reduce the possibility of noise transmission to the building structure.

After the equipment had been placed on a new platform, a steel channel was inserted in the ma-

sonry wall to provide vertical support for the roof.

Supply and Return System

Outside supply air for the heat pump and discharge of used air from the heat pump was handled through weatherproof louvers and ducts connected to the opening originally used to move the equipment into the attic.

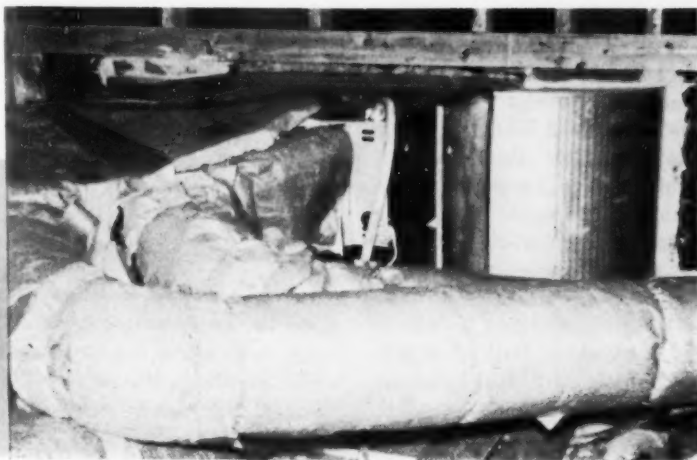
Supply and return ducts were covered with 2 in. of insulation. Joints were sealed to resist moisture penetration that would result

during the cooling season.

When neither heating nor cooling are required, the blower of the heat pump provides continuous circulation of filtered air.

The homeowner had this to say after using the system for one summer and one winter: "The present air distribution system provides faster response to outside weather changes and provides better air circulation qualities. The filtered air is a real benefit. This is the first time in many years that we've had relief from asthma and sinus discomfort."

TO INSTALL a self-contained heat pump in the attic, additional supports had to be provided for the equipment and provisions made to reduce the possibility of noise transmission to the building structure. Air ducts were covered with 2 in. of insulation





SEPARATE MECHANICAL SPECIALTY CONTRACTING BIDS



BROCHURE spelling out the evils of bid shopping, bid peddling and broker contractors is being distributed to architects, mechanical consulting engineers and to owners of large structures, including both office buildings and manufacturing plants

A New Plan to Improve Bidding Practices

**Separate bidding for
each of four categories of mechanical specialty work
is recommended and being accepted
under the "Chicago Plan"**

EFFORTS TO CURB the practices of bid shopping and bid peddling in mechanical specialty work by general contractors are making good progress in the Chicago area. The movement, known as the "Chicago Plan for Separate Mechanical Specialty Contracting Bids," is more briefly stated by those in the construction industry as the "Chicago Plan." This plan is the achievement of a coordinating committee of Mechanical Specialty Contractors' Associations of Chicago, consisting of representatives from: Electrical Contractors'

Association of Chicago; Mechanical Contractors' Chicago Association; Plumbing Contractors' Association of Chicago; and Ventilating and Air Conditioning Contractors' Association of Chicago.

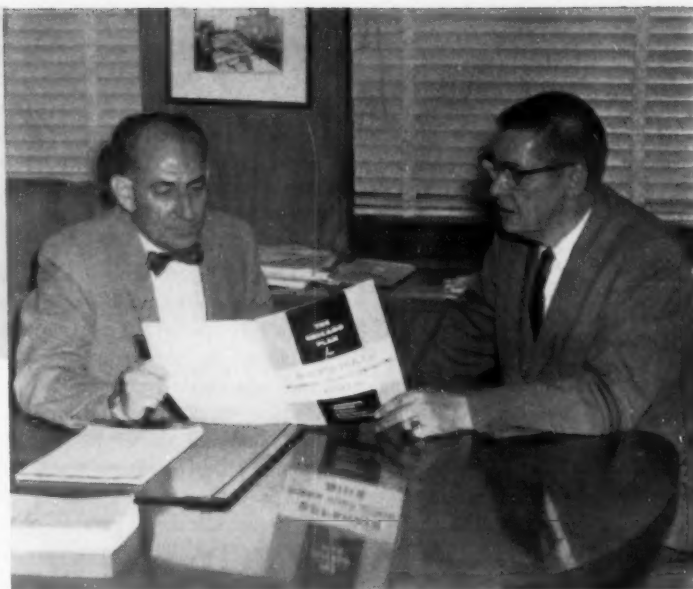
Separate Bid Categories

The coordinating committee believes that separate bids should be taken by architects, engineers and other awarding agencies in each of four categories of mechanical specialty work, namely:

- 1) Plumbing and sewerage.
- 2) Heating, piping, refrigeration and automatic temperature control systems.
- 3) Ventilating and distribution systems for conditioned air.
- 4) Electrical installations.

An eight-page brochure spelling out the evils of bid shopping, bid peddling and broker contractors has been prepared and distributed to over 600 architects who are members of the Chicago chapter of American Institute of Architects. In addition, copies have been mailed to 70 mechanical con-

CHIEF air conditioning and ventilating engineer, Robert J. Salinger (left), Naess and Murphy, architects and engineers, is presented with a copy of the brochure explaining the "Chicago Plan" by Henry J. Couch, secretary, MSCAC, as he makes his rounds to foster its objectives



sulting engineers located in Chicago and to more than 80 owners of large structures, including both office buildings and manufacturing plants.

Reasons for Adoption

In introducing reasons for adoption of the Chicago Plan, the brochure points out how present methods of accepting and selecting bids are outmoded. The brochure states:

"Many years ago, when the mechanical specialty work represented only a small proportion of the total cost of a building, all plumbing, heating, ventilating and electrical installations were included in one over-all 'construction' contract, with one prime contractor. This single contractor, who came to be known as the 'general contractor,' would then let individual 'sub-contracts' for the mechanical specialty work.

"This was a logical procedure in those days, in view of the relative unimportance of the mechanical work. Today, with the cost of mechanical work equal to, or exceeding, that of the structural contract, this process is neither logical nor defensible."

Mechanical Costs Increase

To substantiate this claim, it is shown that "the present status of the contracting phase of building construction has evolved slowly

over the years, and it has kept pace with the growing complexity and cost of the mechanical portions of a building.

"That there has been such growth can be readily observed. Air conditioning, automatic controls, improved lighting, constant temperature devices and more elaborate plumbing are now commonplace in even the most conventional type of building.

"At the same time, the proportionate cost of the mechanical and electrical work has increased from what was once 10 percent or 15 percent of the cost of the building to the present level, which ranges from 40 to 70 percent of the total cost.

Change and Evolution

"In this process of change and evolution, during which all other elements of the industry have kept pace with reality, one element — the system of bidding — has, in far too many instances, remained unchanged. This applies with equal emphasis to the related method of letting contracts."

To show how outmoded procedures work to the disadvantage

of the building owner, the committee says, "Present methods in use have produced a long chain of undesirable effects, three of which are capable of bringing about a state of complete chaos in the building construction industry. These three factors are 'unreasonable cost,' 'bid shopping,' and 'bid peddling.'

Undesirable Effects

"Unreasonable cost results from the fact that it is deemed necessary and proper for a prime contractor to add a 'handling charge' to the cost of each of the sub-contracts which he must negotiate.

"When 50 percent or more of the total cost of a building is subject to this surcharge, in addition to a justifiable coordinating and supervising fee, it represents a sizable expense for which the owner receives nothing in return. The owner is actually paying for additional administrative paper work which detracts from, rather than adds to, the effective and expeditious completion of the building."

When a prime contractor is awarded a single contract embrac-

"As mechanical specialty work grows more complex, the selection of competent qualified mechanical specialty contractors becomes more important"

ing both the structural and the mechanical portions of a building, he is prepared, as a specialist, to execute approximately one-half of his contract, namely the structural half.

Cost of Bid Shopping

If the total amount of this single contract is, for example, \$10,000,000, the single contractor is now in a position to auction off at least 50 percent of the total or \$5,000,000 worth of mechanical specialty contracts.

Every dollar that is saved as a result of this auction, accrues solely to the prime contractor. Not one nickel of it goes back to the owner. This is bid shopping.

The fact that it occurs is no longer disputed. It has been condemned and disavowed by every code of ethical conduct of every contractors' group in the industry, including general contractors. It has been the subject of debate in the Congress of the United States, in state legislatures and in

municipal councils from coast to coast. Still it continues to flourish, and it will continue just as long as the single contract system of bidding persists.

Efforts of general contractors who are neither builders or mechanical specialty contractors (known as broker-contractors) and who make it a practice to auction work to subcontractors are aided and abetted by the type of mechanical specialty contractor who is willing and anxious to sell his services at any figure, no matter how low. This procedure is known as "bid peddling."

Bid Peddler Gambles

The bid peddler gambles that he is sharp enough to make a profit by providing inferior workmanship and by substituting inferior materials.

That he is often successful in this procedure has been learned at the expense of many a frustrated and disillusioned owner. Unfortunately, the results usually be-

come apparent only after the building has been completed and it is too late for action or redress.

Unsuccessful Solutions

Several solutions to this problem have been tried and have been found to be entirely ineffectual. For example:

Bid listing, under which the general contractor identifies his subcontractors in advance, was first introduced. The only visible effect was a shortening of the bid shopping and bid peddling time.

Bid depositories, which establish a central location for the handling of mechanical specialty bids, were then tried. They have not been universally successful simply because they are, and must be, purely voluntary — and thus unenforceable. Any contractor is free to ignore the bid depository any time that it appears advantageous for him to do so. Many do ignore it.

Advantages of Plan

In spelling out the advantages recommended by the "Chicago Plan," the brochure states, "The complete answer to 'Unreasonable Cost' and the twin evils of 'Bid Shopping' and 'Bid Peddling' does exist, and where applied it has proven to be completely effectual.

"The procedure based on separate bids will accomplish this objective. Under this system, each of the mechanical specialty contractor groups submit separate bids directly to the owner — or to his representative, the architect or consulting engineer — on the basis of separate specifications covering their particular category of mechanical specialty work.

"At no time, prior to the opening date, does any bidder get to see his competitor's bid, and at no

It is the firm conviction of the Coordinating Committee of the Mechanical Specialty Contractors Associations of Chicago that construction costs can be reduced, and bid shopping, bid peddling and broker contractors can be eliminated by means of the following recommended procedure:

- A) Prepare separate specifications for each of the four categories of mechanical specialty work, namely:
 - 1) Plumbing and sewerage.
 - 2) Heating, piping, refrigeration and automatic temperature control systems.
 - 3) Ventilating and distribution systems for conditioned air.
 - 4) Electrical installations.
- B) Take separate bids from reputable contractors on each of the four above classes of work.
- C) Let separate contracts to the four low bidders, if qualified.
- D) Provide for optional assignment of mechanical specialty contracts.
- E) Stipulate direct payments to the mechanical specialty contractors, in the event contracts are assigned.

time, after the opening, can he offer to reduce his original bid. By the same token, he is not at any time requested to meet the lower bid, real or imaginary, of a competitor. In addition, and equally important, no intermediate contractor adds to his bid an unspecified carrying charge.

Produces Results

"On the basis of extensive experience with this system, it can be stated unequivocally that it produces two highly satisfactory results:

- 1) Costs have been lowered. On innumerable projects, under which bids were taken both ways, i.e. separately and combined, the cost of separate bids has been lower in virtually every instance.

- 2) Bid shopping and bid peddling have been eliminated. The low bidder, if qualified, is awarded a separate contract at the price shown in his bid. As a consequence, he is not obligated to cheapen the job in order to make a legitimate profit. The owner gets what he pays for — and at a lower price.

Promotes Selectivity

"In addition to the above, separate bids provide the further advantage of selectivity. As mechanical specialty work grows more complex, the selection of competent, qualified mechanical specialty contractors becomes increasingly important. When mechanical contracts are awarded by a general contractor, the owner abdicates his right to screen, through the architect, the various mechanical specialty contract bidders.

"It is inevitable that the general contractor would be influenced very strongly by price alone, and this often works to the owner's ultimate disadvantage. The architect and engineer, if they are at all competent, must consider many other factors including the experi-

ence, integrity and shop facilities of each bidder."

Assign Mechanical Contracts

In some instances, it may be preferable to place all coordination and supervision under the general contractor. In these cases, it is recommended that, after mechanical contracts have been awarded, they be assigned to the general contractor. This procedure is quite simple and is described in the "Handbook of Architectural Practice" published by the American Institute of Architects.

In the event that assignment is contemplated, the original specification and bid form would provide for a supervision-coordination fee. This would be paid to the general contractor if mechanical contracts are assigned, and it would represent a known expenditure, for a specific service.

The Illinois Separate Bid Law was submitted during the early summer of 1959, to the Legislature of the State of Illinois.

After public hearings, and after careful analysis, an amendment to "The Purchases Act of the State of Illinois" was introduced as House Bill No. 1019.

It was subsequently approved by both the House and the Senate, and on July 24, 1959, it was signed into law by the Governor of the State.

This procedure thus offers the additional advantage of defining the amount of the supervision and coordination fee. It also prevents any contention on the part of the general contractor, as is now so frequently the case, that he is not being reimbursed for this service.

Further Incentive

In addition, and as a further incentive to established, solvent general contractors, the assignment of contracts should by all means include a provision for payments to be made directly to all mechanical contractors.

Frequently, general contractors in financial distress have delayed passing on the just payments due mechanical specialty contractors and have, instead, used this money to finance their own operations. Discouraging this practice is very much to the owner's advantage.

What Others Think

The need for separate bids is recognized, not only by the associations which are represented on the Coordinating Committee, but by many other groups and individuals as well.

In a survey which the Coordinating Committee conducted in November of 1958, it was learned that 71 percent of the architects in the Chicago area favor separate bids.

The fact that questionnaires were returned by an extraordinary 48 percent of those to whom they had been mailed, and the additional fact that nearly one-half of those replying added their own comments, provides convincing evidence that the problem of bidding procedures is of real concern to the members of the architectural profession.

As far as there can be learned, there are now nine states with separate bid laws relating to work performed for state agencies. These are: New York, Pennsylvania, Ohio, North Carolina, Wisconsin, New Jersey, Illinois, Massachusetts and California.

Additional support for separate bids has been given by architects in the Chicago area, (71 percent favor separate bids). In an article appearing in the June 1960 "Inland Architect," a publication of the Chicago chapter of American Institute of Architects, endorsement of the Chicago Plan carried these statements:

Important Issue

"When the matter of currently accepting bids was presented on the floor at the recent AGC convention in San Francisco, it pre-

cipitated one of the longest and loudest debates ever experienced."

"At the Construction Specifications Institute's national meeting in Palo Alto, bidding procedures were, once again, hotly debated on the convention floor."

"Further evidence of the importance of bidding procedures are the pamphlets 'Separate Mechanical Contracts' (NAPC) and 'A Discussion on Bid Shopping' (CPLIA)."

"In the Chicago area there is a group which has given long and careful study to current bidding practices and after two years of intensive research and discussion, they have crystallized their thinking in 'The Chicago Plan for Separate Mechanical Specialty Contracting Bids.' It expresses a very deep concern for the future of the building construction industry and is as important to the architectural

profession as it is to the contracting groups."

Merit in Bid Separation

Many general contractors, individually if not collectively, have come to realize that there is a great deal of merit in bid separation — from the standpoint of the general contractor. This fact was clearly established in the booklet entitled "A Discussion of Bid Shopping," published by the Contracting Plasterers' and Lathers' International Association, Washington, D.C.

Further information about the Chicago Plan may be obtained from Henry J. Couch, secretary, Coordinating Committee of Mechanical Specialty Contractors Associations of Chicago, Room 1612, 228 N. La Salle St., Chicago 1.

Metal Church Spires Increase in Popularity

METAL CHURCH SPIRES are growing more popular because they are not only more beautiful than wooden and masonry spires but are now more economical to fabricate and erect.

Basic fabrication in the sheet metal shop cuts costs, and installation of the entire assembly is not a problem with today's heavy duty, truck-mounted cranes.

The spire shown in the illustration is fabricated entirely of aluminum and is fastened to structural supports placed in the original plans for the Faith Church at Farmington, Minn.

Components of Spire

The slotted base is 7×5 ft, and the spire rises to a height of 41 ft. It is crowned with a 6 ft cross. Aluminum angles were used for the main frame ($3 \times 3 \times \frac{1}{4}$ in.) with welded cross bracing of $2 \times 2 \times \frac{3}{16}$ in. angles. The exterior is covered with 0.040 pebble grain finished aluminum sheet. Blind aluminum rivets were used to hold the exterior sheet material to the frame. Total weight of the entire spire is 1100 lb.

It was fabricated by the Artistic Metals Dept., Cronstrom's Heating and Air Conditioning, Inc., Minneapolis.



MARKET for metal church spires is expanding because they are more economical to fabricate and erect and are more attractive than wooden and masonry spires



FIREPLACE with an open or poorly fitted damper can cause drafts that are noticeable at specific spots in the occupied area

Use Cooling Standards to Design Drafts Out of Summer Air Conditioning Systems

Customer complaints of a drafty atmosphere can be avoided when the principles that eliminate improper air distribution are followed

By S. W. REID
Air Conditioning Engineer
Gilbert Associates, Inc.

A DRAFT is a combination of air movement and temperature directed on some sensitive part of the body which registers on one's conscious mind as a feeling of discomfort. Tests have shown that for 90 percent of the subjects a drop in skin temperature of about 3.3 deg at the neck or ankle is indicative of discomfort. Temperature difference tolerance for both areas decrease as air velocity goes up.

Thus, for a room temperature

"Stated simply, the problem of air distribution is to mix conditioned air with room air without causing any discomfort to the occupants"

of 70 F and a relative humidity of 50 percent the following combinations were found to produce discomfort:

NECK	
40 fpm at 69 F	
25	68
12	67

ANKLE	
52 fpm at 67 F	
22	65
7	63

Studies have shown that draft tolerance is related to air motion and the difference in temperature between the room and the moving air. Fig. 1 shows this relationship for air velocities between 0 and 200 fpm and for temperature differences up to 3 degrees.

Movement of Air Stream

Taking a typical point, we can see that an air stream moving at 100 fpm in a 75 F room would constitute a draft if it was more than 0.5 deg below room temperature. If the room were at 80 F, the 100 fpm air stream could be as much as 1 deg below room tem-

perature before it would be classified as a draft.

Rate Cooling Systems

Having defined a draft by words and numbers, we now refer to the American Artisan's Standard for Rating Residential Cooling Systems card published in April 1960.

A system in which there are no noticeable drafts in any occupied area is rated as GOOD. If drafts are noticeable at specific spots in the occupied area, the system gets a FAIR rating. If general discomfort from drafts in the occupied area is experienced, the system is rated POOR.

A draft is not something associated exclusively with a forced air system which is poorly designed. It can occur in the winter with any type of conditioning system due to wind and thermal pressures. The trend toward tighter construction, including almost universal weatherstripping of residential windows, has done much to reduce drafts caused by wind pressure with the possible excep-

tion of the drafts that are caused by a fireplace with an open or poorly fitting damper.

Thermal pressures are the result of temperature differences. Since warm air is lighter than cool air, it tends to rise as the latter falls. An example of a draft due to thermal pressure is the cold, wintertime down draft which exists at windows and outside walls as the layer of air next to the wall is chilled and falls.

Design Determines Drafts

Summertime drafts associated with air conditioning cannot be blamed on the wind or upon thermal pressure. They are a by-product of the design of the air distribution system. Therefore, if an air conditioning system is to operate with no noticeable drafts, special attention must be given to this requirement in the design stage.

Good year 'round design will incorporate not only those principles that eliminate summer drafts but also those which counteract or at least minimize the natural winter drafts that cause discomfort to the room occupants.

Characteristics of an Air Stream

Three characteristics used to describe an air stream issuing from an outlet are:

Throw—The distance an air stream travels until its velocity reduces to 50 fpm. It is important in determining where an air stream will enter the occupied zone (6 ft above the floor) or whether or not a given outlet can adequately serve a given area.

Spread—It is the fanning out of the air stream as it moves away from the outlet. Facts about spread are useful in deciding how far apart adjacent outlets may be placed without interference of their air streams.

Drop—It is the vertical deflection of the air stream. Knowledge of the drop is important in deciding where an air stream will enter the occupied zone and whether or not it will miss obstructions.

Problem of Air Distribution

Stated simply, the problem of air distribution is to mix conditioned air with room air without causing any discomfort to the occupants. If the conditioned air is introduced into the room at 20 deg below room temperature, about 10 volumes of room air must be mixed with each volume of conditioned air to lower the temperature difference in the room to 2 degrees.

With this difference, the air movement can be about 40 fpm for a room temperature of about 78 F as indicated by Fig. 1. This falls within the velocity range of 35 to 50 fpm which is generally

considered as the maximum that can be tolerated in a conditioned room under normal circumstances.

Four Groups of Outlets

In order to determine the best way to introduce conditioned air into a room, an extensive research project was undertaken several years ago by the University of Illinois in cooperation with the American Gas Association.

More than 300 studies were conducted with different experimental arrangements. From these it was determined that there are four significant groups of air outlets, each group having its own distinct characteristics. These groups are shown in Fig. 2.

Outlet Characteristics

In group A outlets, two different application conditions were found to result in different distribution characteristics. For one condition, the ceiling outlet was mounted flush with the ceiling,

and the sidewall outlet was mounted in the wall as near to the ceiling as possible. For the other condition, the ceiling outlet was mounted in the underside of an exposed duct, and the sidewall outlet was mounted in the wall a corresponding distance below the ceiling.

For the flush mounted outlet, optimum distribution results when the throw is equal to the distance between the outlet and the wall or edge of area to be covered. Warm air discharged by either type outlet will, because of its lighter weight, tend to stay against the ceiling as it moves across the room and mixes with room air.

Ceiling Effect

Tests showed that the cool air likewise will tend to cling to the ceiling rather than drop rapidly into the occupied zone. This is sometimes called the ceiling effect.

For the horizontally discharging outlet mounted some distance below the ceiling, it was found

that, for heating, air should be discharged horizontally with little spread, whereas for cooling, a maximum spread was best.

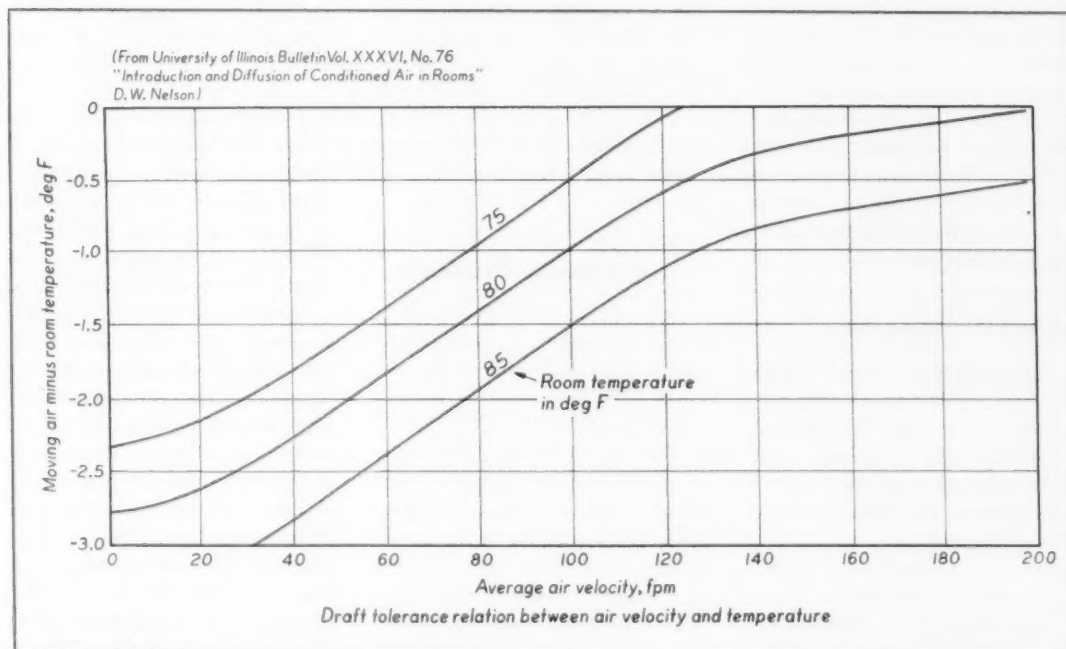
Test Results

It is recommended that the below ceiling outlets, when applied for year 'round service be selected for a .20 deg temperature differential and a non-spreading jet so that the drop zone occurs near the opposite wall. This will result in acceptable distribution during heating with the non-spreading jet and during cooling with a spreading air flow obtained by adjustment of the outlet's vanes.

The tests showed that ceiling outlets and high sidewall outlets should be used with maximum supply air temperatures of 100 F and 115 F, respectively, for heating.

Effect on Air Distribution

Group B outlets were found to be particularly applicable in a year 'round system utilizing high



1 For a given room temperature, the temperature of moving air and a velocity of air greater than that shown will generally result in a draft

"It is well to remember that the cataloged performance of outlets depends upon air being supplied to them in a uniform pattern"

air flow rates with low temperature differentials. The primary consideration in selection occurs when cool air is discharged. A minimum discharge velocity of 500 fpm for 20 deg differential or 250 fpm for a 15 deg differential was found necessary to cause the cool air to carry to the ceiling. For heating it was found that the supply velocity had little effect upon air distribution.

Effect of Velocity

Group C outlets are similar to group B except for the greater spread. They may be used for year 'round service provided that they are selected with sufficient velocity to project cool air to the ceiling. The value of this will depend upon the specific characteristics of each outlet and cannot be given as a minimum except to say it will exceed the minimum velocity of the group B outlet.

Group D outlets were found to be satisfactory for heating only. When cool air was supplied from them it remained near the floor because of its greater density than the warmer air above. This type outlet can be used for heating successfully only if velocities are kept low, since the air motion takes place in the occupied zone.

Meet Room Conditions

Fig. 2 shows representative test data for a single outlet from each of the four groups. The temperature differentials and supply velocities shown were those necessary to meet the following conditions in the room:

- 1) A temperature variation within 8 deg between the 4 in. and 60 in. levels above the floor with an outdoor temperature of 0 F (heating).

- 2) A condition where 80 percent of the points checked in the occupied zone deviated less than 1 deg from the control temperature when the outdoor temperature was 96 F (cooling).

Temperature Variations

When the temperature differentials were increased beyond those shown for heating, the 4 in. to 60 in. temperature variation rose beyond the established limit of 8 degrees.

When the supply velocities shown were exceeded, temperature variations in the occupied zone dropped, but the number of points in the room where air motion exceeded 35 fpm was increased.

The velocity indices show the percentage of points checked in the occupied zone where the air motion was in the two ranges shown. It is interesting to note the relatively small percentage points that showed a velocity over 35 fpm for the applications reported. The choice of 35 fpm as an upper limit for air motion was perhaps a little severe. As previously mentioned, some authorities allow up to 50 fpm.

Tests Aid Dealer-Contractor

It would be very difficult for a dealer-contractor to detect and measure, let alone differentiate between such low velocities without using laboratory devices.

Air changes per hour in the test room shown in the last column resulted from the mass air flow needed to handle the heating and cooling loads under the conditions of temperature differential used.

The study upon which Fig. 2 is based is referred to here not only to show specific outlet characteristics but, perhaps even more im-

portant, to provide a glimpse of the considerable accumulation of scientific facts that back up air distributing devices available to the dealer-contractor. Manufacturers, of course, make many additional tests of their own products. These tests provide information that goes into the catalogs which tell us how to apply the products and what their limitations are.

Types of Air Streams

Since the design of an air distribution system should be based upon specific information about the outlets to be used, the dealer-contractor should acquaint himself with some of the terms used in this work.

For example, there are three characteristics used to describe an air stream issuing from an outlet. These are throw, spread and drop.

The distance an air stream travels until its velocity reduces to 50 fpm is known as the throw. Knowledge of the throw is essential in determining whether or not an air stream will strike a wall and thereby become an undesirable draft. Throw is also important in determining where an air stream will enter the occupied zone (6 ft above the floor) or whether or not a given outlet can adequately serve a given area.

Spread is the fanning out of the air stream as it moves away from the outlet. Even with straight-set vanes, an air stream has a minimum spread of 7 degrees on either side of the center. Facts about spread are useful in deciding how far apart adjacent outlets may be placed without interference of their air streams. For a given outlet, an increase of spread accomplished by adjusting vanes will result in a reduction of throw.

Drop is the vertical deflection of the air stream. It is a function

Group	Outlet Flow Pattern	Temperature Differential Deg F	Minimum Supply Velocity fpm	Velocity Indices		Air Changes Per Hr
				15-35 fpm in Percent	Greater than 35 fpm in Percent	
A Ceiling flush mounted, 360 deg diffusion angle	Heating	20	800	65	10	10.0
		20-greater	200-800	90-80	5-20	8.5-6.6
	Cooling	25	600	55	25	8.5
		20-greater	250-600	80-65	15-35	8.5-6.6
B Floor registers, base-board and low sidewall, (non-spreading)	Heating	35	900	80	0	6.6
		25	400	80	0	8.5
	Cooling	20	500	85	12	6.6
		15	350	80	20	8.5
C Floor diffusers, base-board and low sidewall, (spreading)	Heating	60	900	70	0	3.6
		25	300	85	10	8.5
	Cooling	20	750	75	10	6.6
		15	500	60	10	8.5
D Low sidewall	Heating	greater than 60	less than 300	70	9	less than 3.6
			not acceptable	—	—	—

2 Taken from University of Illinois Engineering Experiment Station Bulletin No. 442 "Distribution of Air With-in a Room for Year 'Round Air Conditioning-Part 11" by Harold E. Straub and Michael Ming Chen

of distance from the outlet, of temperature difference between the air stream and the room and of ceiling effect. Knowledge of drop is important in deciding where an air stream will enter the occupied zone and whether or not it will miss obstructions. In the case of warm air, drop may be negative indicating a rising air stream.

It is well to remember that even the most carefully selected outlet will cause a draft if the issuing air stream encounters interference such as a beam, a large lighting fixture projecting from the ceiling, an item of furniture or a

drape which was not anticipated. It is also well to remember that the cataloged performance of outlets depends upon air being supplied in a uniform pattern.

Importance of Return Grille

This discussion of drafts will not be complete until we say a word about the part which the location of the return grille plays in creating them.

Actually, return grilles themselves have very little effect upon air movement in a room. Air handled is drawn from all directions and the velocity drops off rapidly

as the distance from the grille increases. It is possible to encounter a situation where the approach area to a grille is limited and creates high approach velocities. Such situations are usually evident and can readily be checked.

There are other situations where return grilles can be located to reduce drafts, particularly with warm air heating. An under-the-window return, for example, would aid in keeping drafts off a cold wall from moving across the floor. In like manner, a return at the bottom of stairway can serve to carry away cold air before it becomes a draft.



HERE IS A MARKET for individual summer air conditioning units needed by small restaurants to retain their clientele the year 'round

Use Competition Between Restaurants To Sell Summer Air Conditioning

High cost of installing some central systems can be reduced by locating the equipment on the roof

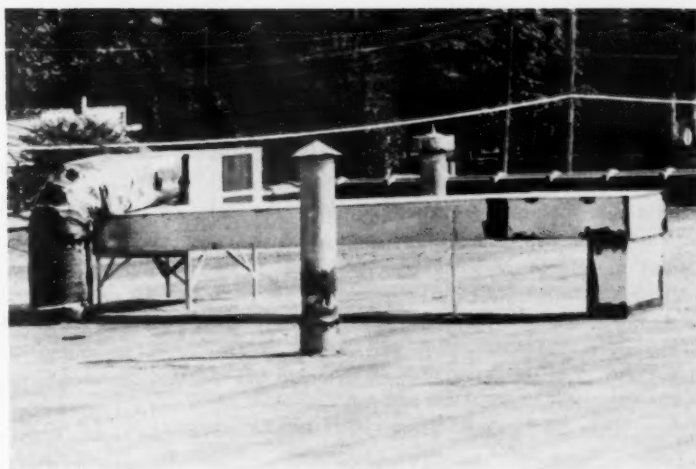
NON-AIR CONDITIONED small restaurants with established reputations find that during hot spells their customers go to other restaurants, and in some cases fail to return with the cooler weather. Thus, competition is forcing these business places to install central summer air conditioning.

"Cost of installing central systems in a well deco-

rated building comes high because of the redecorating expense after ducts have been installed. Another problem faced by the restaurant owner is the location of the equipment. Both of these problems are simplified, however, when roof top locations are used," says John Henke, the Gust Krack Co., Erie.

Other advantages pointed out by Mr. Henke in-

ONE OF FOUR roof mounted self-contained summer air conditioning units that will handle separate dining rooms, each with a seating capacity of 60 persons ▶



clude the lower initial installed cost of summer air conditioning, the flexibility and economy of operation and the introduction of ventilation during periods when cooling is not required.

Zone Air Conditioning

One recent installation made by the Gust Krack Co. is four, three-ton units located on the roof of a restaurant that has four separate dining rooms, each seats 60 people, and a cocktail bar.

Each room is air conditioned by a separate conditioning unit located on the roof and is supplied by one large ceiling diffuser located in the center of the dining area and one return grille located against an inside wall.

Where the supply and return ducts penetrate the roof they are flashed and sealed against leakage.

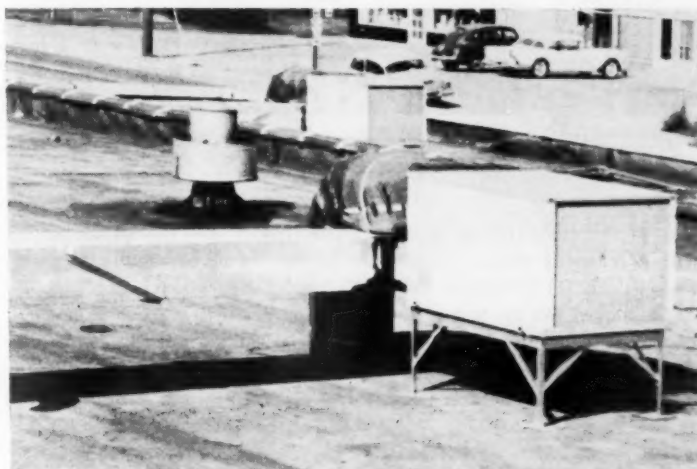
The condensing unit is located on a metal frame 12 in. above the roof top so that air used for the air cooled condenser is not taken from the hot layer of air that lays along the surface of a roof.

Air cooled condensers are protected by visors fabricated in the company's sheet metal shop. These are fastened to the condensing unit cabinet to protect the condenser face from the sun's rays. This has been found to markedly improve performance on hot days by shading the condenser face from direct sunlight.

Insulate Against Weather

In each return duct is located a fresh air intake sufficiently large to provide 10 percent makeup air for ventilating purposes. Originally, it was planned to insulate only the supply duct. This was based upon

SUMMER air conditioning units being installed on the roof of this restaurant will, when completed, include insulated and waterproof supply and return ducts and a sheet metal visor to shade the condenser from direct sunlight ▶



the feeling that the return air plus the air taken in for makeup purposes would not be greatly protected by passing through a short uninsulated return duct.

However, this opinion has been revised based on experience during the past winter when the system was used strictly as a ventilating system. It was noted that cold air being brought into the return air duct through the fresh air intake chilled the metal portions of the supply duct and ceiling diffuser to a point that moisture would condense out of the room air and form on the diffuser ring and drop into the dining area.

Thus all ducts, both supply and return, are insulated with 2 in. of insulation and waterproofed to protect it against weather.

Penetrates Sales Market

Mr. Henke, who heads up the heating, air conditioning and ventilating department of the Gust Krack Co., uses two full time salesmen to help him in his sales work. It includes both new house and replace-

ment work. Replacement work being in the majority, but with new house construction getting the greater share of summer air conditioning in residential units sold in the area.

Return from Advertising

Each year the company mails out about 5000 direct mail pieces soliciting summer service for heating equipment. The returned orders amount to about 12 percent.

The company uses both radio and TV spots in its year 'round advertising program, with one variation that some of the radio programs are broadcast in German as well as English due to the large number of German speaking people in the Erie area.

Mr. Henke is a past president of the Pennsylvania Heating, Air Conditioning and Roofing Contractors' Association and is currently a director of that group. He is also active in the local association, having recently helped re-organize the Erie association, and is now heading its aggressive program.

Airlift Solves Hoisting Problem



HELICOPTER with condensing unit is guided into position by employees of Broadway Sheet Metal Works

GETTING AIR CONDITIONING equipment on a roof is often a problem in itself. Many techniques have been employed, but the first known case of a helicopter being used was reported by Broadway Sheet Metal Works, Santa Monica, Calif. The company was working on a job where the shape of the roof,

power lines, and inadequate space for operation of mobile hoisting equipment prevented the use of standard hoisting techniques.

Prior to the actual airlift, the helicopter service company made a test run to the building and simulated the actual hoisting of the air conditioning equipment.

Their purpose was to study down-drafts that might hinder the operation.

All equipment was delivered to the Santa Monica Airport, approximately three miles from the job, where 250 lb had to be stripped off to meet the 600 lb limit which the whirlybird could handle. This was accomplished by removing the blower housings and blower motors.

The equipment was carried by a sling and disconnected when in position by a bomb release.

The equipment is used to provide summer air conditioning for an existing gas-fired furnace and duct system located on the second floor of a two-story office building. The conditioned space is used as a general office area and employees' dining room. A cooling coil was added and connected to the remote air cooled condensing unit mounted on the roof.

The editors acknowledge the cooperation of The Trane Co. in providing this information and illustration.

the science of



SELLING

THE SUCCESS AND GROWTH of every industry depends on its ability to create a desire for the products and services it offers. The responsibility for this motivation falls upon the industry's sales force, who must see to it that sales grow not only in volume but also in quality; that is, they must represent an exchange of maximum benefit to the customers for a fair profit to the business. This exchange permits — and also requires — the business to improve its operation constantly to serve future customers better.

To fulfill this obligation, salesmen must be able to recognize the needs of prospective customers quickly, and then produce logical recommendations for meeting these needs. Thus, training new salesmen and improving sales forces is a continuing task of management.

This series of articles presents some new information and some refinements of established sales methods which will be useful in sales training programs.

If the sales staff is small, route the magazine to each salesman before filing it.

If the sales staff is large enough to warrant weekly sales meetings, use each article as the basis for a continuing training program.

Wholesalers and manufacturers can assist dealer-contractors and their salesmen by building more formal sales training programs around this series.

Five Ways:

You Can Increase Sales Volume Reduce Total Costs Per Sale

By putting most of your sales promotional effort on locating new prospects you are overlooking a pre-sold market that can help you lower your selling costs

SALES PROMOTION COSTS are usually in direct proportion to the number of prospects sought. In order to reduce the total costs per sale, it is necessary to close as many leads as possible and to sell the prospects the maximum number of products handled.

Often warm air heating-air conditioning dealer-contractors and sheet metal contractors put most of their sales promotional effort on locating new prospects. This is not always necessary. Continued pro-

motion, properly directed to previous customers, can be a rich source of sales leads.

To get the most out of each prospect turned up:

1. Sell All Products Handled

Many dealer-contractors and their salesmen too often assume that their customers are not in the market for additional products when, in reality, the

customers just don't know what other products are available to them. It's too easy for sales representatives to take the course of least resistance, that is, to push only the minimum equipment required by a prospect. The result: a comfortable — but costly — selling rut.

Salesmen for Masback, Inc., hardware wholesalers, use a technique that warm air heating-air conditioning dealer-contractors can easily adapt to their selling methods. The Masback salesmen sell more by hooking up one product to another in their presentations.

"A dealer who orders paint, for example," says Phil Spiegel, vice president, "automatically becomes a prime prospect for brushes, rollers, pans, scrapers and a dozen other products. Our salesmen are trained to point out tie-in sales possibilities whenever possible — something every retailer appreciates. Why shouldn't they? It means bigger profits for them."

Warm air heating-air conditioning dealer-contractors can adapt this technique by first selling the type of system needed to adequately heat the house as outlined in the "Good" classification in American Artisan's "Standards for Rating Heating Systems" card. Once these essentials have been sold and approval given for the order, the next step is to "hook up" the benefits of electrostatic air cleaners, air sterilizing lamps, summer air conditioning, metal awnings, etc.

By logically moving each product into the "Benefit Class" approval can be more easily obtained. This arises from letting customers know what products are available from this industry.

Use Sales Literature

Just as this approach is adaptable where an initial sale is being made, it can also be the basis for sales promotional activities directed to customers already in the company files.

Even if a prospect for one of the optional pieces of equipment doesn't place an order, it is always a good idea to leave pertinent sales literature to remind them of your recommendations. Sales pieces with handwritten sales messages in the margins are the best reminders.

When sales personnel sell all of the products handled, sales volume goes up and corresponding increases in profits appear.

2. Keep in Touch with Prospects, Customers

Neighborhoods change. New needs arise. The reason for postponing an order six months ago may not exist today.

One successful sales manager recommends, "Un-

less you're a marriage broker, check back regularly with your customers and prospects to reassess their needs."

3. Make Surveys

Convinced that a certain industrial plant was unwittingly contributing to employee inefficiency through poor illumination, a representative of a lighting firm took an informal poll among workers and discovered that an alarming number of them suffered from early afternoon fatigue and recurrent headaches.

Armed with these "testimonials" — and a report from the plant physician — he convinced his customer to revamp his entire lighting system.

This very same approach can be very effectively used by sheet metal contractors who specialize in industrial sheet metal work. A series of questions could be prepared and with the assistance of the factory management, it could be determined if inadequate ventilation or abnormal temperature conditions are responsible for inefficiency or employee fatigue. Often, air sampling with instruments will reveal conditions that management is entirely unaware of

How about you?

Here's a "quickie" quiz and checklist to help you spot opportunities for boosting your present "share of the business."

- 1) Are you selling your full line?**
- 2) Do you feature your economy line in sales promotion?**
- 3) Do you ask for more business?**
- 4) Are you on the lookout for new uses for your products and services?**
- 5) Do you periodically check back on — and reassess prospect and old customer needs?**
- 6) Do you prove that your products and services can mean savings to the purchaser?**
- 7) Are you picking up enough leads from satisfied customers?**
- 8) Are you taking advantage of your competitors' sales weaknesses?**

but which can be corrected without major capital investment.

This type of guidance not only serves to improve customer relations but helps contractors sell more of their services at a fair profit because work of this type doesn't lend itself to competitive bidding.

The moral is clear: prove to a customer that he needs more of what you are selling and he'll buy more.

4. Get Referrals

There's more than one way to cash in on a satisfied customer. The best way is to ask him to recommend friends or relatives who might be interested in your product or service.

A salesman for a landscaping firm, disappointed by the scarcity of leads given even by his most enthusiastic customers, literally quadrupled his prospect list with a simple change of strategy. Instead of merely asking for names out of the blue, he suggests that customers thumb through their phone-side address books and refresh their memories. "Usually," he reports, "they surprise themselves with the number of possibilities they come up with."

Here's another idea that can be easily adapted by heating and air conditioning salesmen.

5. Know Competition

Are salesmen from other companies talking to your prospects? If so, find out what they are telling the prospect and then turn the weak points in their sales presentations to your advantage, but do this without condemning their company or products. Point out how your company outserves the competition and there's no need to enter into controversial subjects.

In short, the real secret of picking up more business from both new prospects and your old accounts is creative salesmanship, a rediscovery of the axiom, "The more you give, the more you get."

How to Figure Cost of Service Calls

FOR YEARS MANY DEALER-CONTRACTORS have used a rule-of-thumb method to determine what their labor service charge rate should be based upon. The successful dealer-contractor has doubled his hourly wage rate. American Artisan has pointed this procedure out a number of times in its editorials and in articles about companies where service rates are properly charged. But it took D. W. McGarry, president, Baseline Sheet Metal, Inc., San Bernardino, Calif., to scientifically determine the exact costs involved in service charge rates.

The breakdown consists of 31 items (including a fair profit), all of which contribute to the cost of answering a call for service on a heating or air conditioning system. This is the proportioned breakdown:

Hourly Wage Rate	
Hourly rate	\$3.85
Fringe benefits per hour	.36
Social Security	.06
Unemployment insurance	.03
Workmen's Compensation	.03
Truck Expense	
Depreciation	.05
Maintenance and repairs	.05
Oil, gas, insurance	.55
Lost Time	
Call backs	.05
Standby	.02
Travel time to and from job	.20
Overhead	
Supervision (average 1 foreman to 5 journeymen)	.03
Clerical work, payroll, billing	.40
Bonus or commission	.05
Executive salary	.40
Estimating	.50
Telephone and utilities	.21
Rent or rental value of property owned	.40
Offices supplies	.01
Auditing	.02
Advertising	.03
Office equipment depreciation and repair	.01
Shop equipment depreciation and repair	.05
Credit losses	.05
Insurance — fire, theft and liability	.04
Taxes — city, county and property	.01
Licenses — city, county and state	.01
Dues and donations	.02
Interest on money invested in business	.01
Operating supplies and miscellaneous	.05
Total Direct Cost	\$7.55
Profit — 6%	.45
Total Price Charged	\$8.00



Here are some tips for staging interesting and effective sessions that will hold salesmen's interest and produce tangible results

DEALER-CONTRACTORS who don't conduct sales meetings to introduce new ideas and kick the old ones around are cheating themselves of selling power. Whether the organization is large or small, exchanging ideas can have nothing but a beneficial effect.

The Small Business Administration has some sound ideas on the subject. Following is a summarized report presented by Bernard C. Weirauch, Orr Iron Co. in the SBA Management Aids for Small Manufacturers.

A company sales meeting has one primary purpose: To tell a sales staff something specific. Usually this purpose is to sell them on the merits of a product, its applications, and on what that means in terms of compensation for the salesman and his company. The sales meeting should be

an exciting example of the highest type of selling. Attending the meeting are the people you will depend on to sell the product.

The fact that the salesmen comprise a captive audience is no reason to assume that they will believe everything you tell them, and will obediently dash out and sell the product. Remember, they have heard this basic pattern before. Hence, a more thorough and convincing selling job must be done with them than even with the customer. Anything but the best possible presentation, told understandingly and convincingly, is poor policy.

A good first question to ask yourself is: What is the specific objective of this meeting? You may have many good reasons, but make sure you choose the most impor-

tant one as the springboard. Then prepare your program with that goal in mind.

Keep Prospects in Mind

Avoid mentioning features which are supposed to be "good," unless you explain why these features are important to the purchaser.

Good quality, by itself, never sold anything. The features that make up good quality sell a product only when they are presented in terms of why they are important to the customer. In other words, the "reason why" is what counts. Consequently, sales meetings should spotlight specific qualities, applications, and markets.

Don't Cover Too Many Subjects

A meeting in which a limited number of subjects are thoroughly discussed is usually more fruitful than one which merely scratches the surface of a lot of material. Salesmen, after all, can employ only the sales story they understand. Therefore, confusion, uncertainties or failures to understand should be precluded, even at the cost of limiting the amount of material covered.

Restrict the presentation to fundamentals and make certain that every appropriate phase of these fundamentals is adequately considered.

Allow Sufficient Time

Don't cram too much into any one session. It is better to make sure that a limited amount of material is well understood than to risk confusion resulting from presenting too many points at one time.

When guests speakers are used, it is a safe rule of thumb to assume that each may need 20 percent more time than he estimates.

Few speakers are so good that their audience doesn't get tired of them (even though they don't think so) if they try to run too much of the show single-handed. In sales meetings today many companies are using as a rule of thumb a maximum of 20 minutes per man before any one group. Some companies alternate speakers even more rapidly. Such a limitation forces a speaker to have his remarks well organized and helps to prevent rambling. This change of pace not only keeps a meeting "alive", but also permits the group to absorb more from a single session.

Provide Variety

In a sales meeting your salesmen are in an atmosphere entirely different from their normal working conditions. To you, as an executive, the situation may not be much removed from your usual routine.

A sales meeting is somewhat like removing a boxer from the ring and making him sit quietly in a class on physical fitness. A little is all right, but the program must be varied enough to hold his interest. Don't invite

BUILD YOUR SALES MEETING program around these 14 points:

- 1. Plan meetings with customers and prospects in mind**
- 2. Don't cover too many subjects**
- 3. Allow sufficient time**
- 4. Provide variety**
- 5. Change the pace of presentations**
- 6. Use showmanship to spice the meetings**
- 7. Don't forget visual aids**
- 8. Watch out for small details**
- 9. Seek a neutral atmosphere**
- 10. Avoid interruptions**
- 11. Stress product knowledge plus sales training**
- 12. Include engineers on the program**
- 13. Give the meeting a "forward look"**
- 14. Encourage two-way discussions**

thoughts of various field situations to enter the salesman's mind and distract his attention from what is being said.

Showmanship Adds Spice

Showmanship, used moderately and properly timed, can drive home important points. It involves knowing what is appropriate, how to set up the proper background, and when to stop. Good showmanship in a sales meeting does not mean a theatrical performance. Instead, it is really a simple but effective illustration. For example, one company in dramatizing the reason for asking 100 percent cooperation from all salesmen in a particular campaign, had on the stage a huge pair of scales (a homemade enlargement of an old-fashioned weighing balance). On one side was placed a large box labeled "Our Goal." On the opposite side, the boss placed, one by one, a series of smaller boxes, each labeled with a salesman's name. Only after the last small box was added did the big pointer swing into balance between the big and little boxes.

Skits, humor, and case histories add "spice" to your sales meetings.

Don't Forget Visual Aids

Flip charts, film strips, cut-away displays, flannel boards, and "black light" can be very important in mak-

ing a lucid sales meeting. However, no speaker should ever expect them to do the whole job for him. In addressing salesmen, a speaker should know the most effective sequence of ideas. With a supply of 3×5 in. cards, there is no excuse for a speaker "wandering" in his presentation and leaving all the graphics until the end. Rehearse with your visual aids prior to appearing before a group of salesmen.

Many wholesalers' sales meetings for dealer-contractors are put on by manufacturers' representatives. Many of them request that, in addition to the local representative, the factory send the sales manager, regional manager, or "someone from headquarters" trained in conducting meetings.

The reason is that good factory men in the field sometimes fall flat before a roomful of dealer-contractor salesmen because they "trust to luck" to pull them through. As a result, more and more alert manufacturers today are training their salesmen not only in product knowledge and in selling techniques, but also in the art of staging effective sales meetings for salesmen.

Watch Out for Details

Seldom does a sales meeting flop because of management's failure to plan major details. It is the little details, so easily overlooked, which usually cause the trouble. For example, the executive may go to extreme lengths to find just the right movie on some appropriate subject only to have the whole thing flop in the meeting when the sound system on the projector fails to work, or the film is so old that it either breaks or slips off the guide wheels and causes repeated interruptions.

Seek Neutral Atmosphere

Sales meetings held in the office or shop sometimes remind the salesman of the "things I meant to get done while here" and some of the effectiveness of the meeting is lost. Also, routine noises in the shop or office are usually very distracting. Many firms have found that a hotel room or similar meeting place, adequately equipped and away from company property, is the most conducive to attention, study, and learning. Many managers have decided that "saving money" on sales meetings by holding them in any available factory space is far too expensive for them.

The meeting room should be comfortable, quiet, and air conditioned (or at least well ventilated). All the salesmen should be able to see and hear well. To facilitate taking notes, as well as to help alleviate fatigue for the salesmen, provide tables and comfortable chairs.

Prevent Interruptions

Any interruption that causes all, or even one of your salesmen to be distracted reduces the efficiency of the meeting. Be careful not to pass out too many samples or

too much literature. Catalog sheets, price lists, pictures, descriptions and samples should be distributed only when the speaker is going to discuss them. Any speaker will lose a high proportion of his listeners when they have too many distractions before them.

Convert Product Knowledge

A salesman's knowledge of his product and its application is important. But it is not the whole answer in selling. Many sales managers today feel that too much product knowledge can actually be a hindrance. For example, not many consumers buy an air conditioner for its bearings, 1750 rpm motor, compression ratio, or heavy gage steel. What most customers really want is the comfort it will afford. Consequently, the features of the product must be converted by the salesman into benefits and advantages that the prospect can easily understand and apply to his everyday living. Remember, what may appear to you as a satisfactory explanation, may be just so many technical words that the prospect cannot comprehend.

A sales meeting must give salesmen knowledge of effective selling methods in addition to product knowledge if it is to achieve maximum success. Some small businesses provide such training through outside agencies. One advantage in using such outside professionals is that they do not allow product information to fill too great a proportion of a sales meeting.

Hold "Forward Look"

Future plans should always have a high priority. Report on the past only to the extent of "giving the scores" in which salesmen may be interested. Long-winded historical reviews are worthless. Concentrate, instead, on facts that will instill confidence in the company and its management. Compare your growth over competition's loss. Present all statistical reports in terms of "What does it mean to me, as a salesman?" Highlight added services, better advertising, improved engineering help, promising new products, and so on.

Encourage Discussion

A sales meeting in which there is free two-way discussion among all present will give management facts on the sale of its product which may have been overlooked. Executives can present useful information to the salesmen; they, in turn, can frequently contribute new ideas for better merchandising, promotion, and markets.

Sales meetings are a vital part of selling and of management. Good meetings bring many benefits: Training, education, good attitudes and relationships among salesmen, and between salesmen and management. They provide morale uplift, challenge, enthusiasm, loyalty, and an awareness by salesmen that management respects them, depends on them, and has confidence in them. Profitable sales meetings are designed to help the salesmen; they should not be a mere sounding board for management.

fabulous

NEW FURNACES FOR THE FINEST
IN GAS HEATING

Armstrong
700 series



- ★ *NOW... a completely new line of counterflow models*
- ★ *COMING SOON... larger sizes to round out
the line of up-flow models*

NEW COMPACT DESIGN • NEW HIGH STYLING • SAME FINE



QUALITY

Home Owners, Home Builders and Heating Dealers agree...

"fabulous"

is the word for the

Armstrong
700 series

Enthusiasm for the Armstrong 700 Series has been building steadily since the first up-flow units were introduced nearly a year ago. Now, in answer to repeated requests, an all-new series of counterflow units, in the same four sizes (60,000, 80,000, 100,000 and 120,000 B.T.U.), has been developed . . . with the same design and performance plusses which made the Armstrong up-flow units 1960's most exciting new furnaces. Larger sizes in both the up-flow and counterflow models will be available soon.

NEW HIGH STYLING

You've never seen furnaces which add more to the appearance of any area in which they are installed. Clean, slim styling in green, gold and white adds a touch of distinction to any decorating scheme.

NEW COMPACT DESIGN

A space just 12" by 25½" — that's all the floor area that's required for the 60,000 or 80,000 B.T.U. up-flow or counterflow (up-flow units are 54" high, counterflow units are 59" high) — and even the largest sizes are real space savers — cabinets on the 120,000 B.T.U. models are only 20" x 25½" x 54" (up-flow; counterflow units are 59" high). Smaller? Yes! Enough smaller to allow significant savings on living space and on ease and economy of installation? Definitely!

Smaller flues (4" on 60 and 80,000 B.T.U., for example) mean additional savings on installation.

NEW HIGH STANDARDS OF PERFORMANCE

Performance was not sacrificed to achieve compact design and fine styling in the 700 Series. Armstrong engineers have set new standards in styling and dimension with furnaces which are unexcelled for efficient, economical, maintenance-free operation.

SAME FINE



QUALITY

In materials, components and craftsmanship, Armstrong 700 Series up-flow and counterflow units maintain or exceed the exacting standards which have made "Armstrong" the by-word of quality in warm air heating.

FABULOUS NEW PRICES, TOO

In design, performance and quality of construction, Armstrong 700 Series gas-fired furnaces offer a combination of advantages not available in any other furnaces at any price — yet the 700 Series is priced to compete in the mass market against units which have far less to offer.

Here's more evidence that Armstrong leads in home comfort engineering

The All-New Armstrong Electronic Air Cleaner

Armstrong engineers refused to be stampeded by growing interest in electronic air cleaning equipment. They insisted that Armstrong should not enter this market until it could be done with the very finest in equipment — and now they're ready. The new Armstrong electronic air cleaner is designed and built to out-perform anything previously available. Exclusive Armstrong power-pack eliminates voltage fluctuations which can lead to "part-time" filtering action. Special manufacturing techniques practically eliminate the possibility of ozone discharge.

But Armstrong engineers are not content to rest on their laurels — already they're hard at work on further expansion of the 700 Series, and on equipment to meet the growing interest in electric heating. That's why Armstrong is truly the home comfort line for the fabulous 60's.



For prices and details on Armstrong 700 Series furnaces and the Armstrong Electronic Air Cleaner, write to Armstrong Furnace Company, 851 West Third Avenue, Columbus 12, Ohio





**SAVES
YOU**



**MAKES
YOU**



**Give Your Bids a Competitive Price Edge
With G-B DUCT — The "Prefab" Duct That
Cuts Installation Time Almost In Half!**

G-B DUCT, the round, prefabricated glass fiber duct, is appearing in more and more residential and commercial air conditioning and heating bids. The reasons are simple. Contractors have discovered that this performance-proven duct helps them get good jobs, do good jobs, and make good profits.

FAST, FOOLPROOF INSTALLATION

As a material, G-B DUCT actually costs a little more than metal-plus-insulation ductwork, but it can be installed so much faster and cheaper that finished costs are usually lower than those for conventional duct. G-B DUCT comes in 6' ready-to-use sections, in standard sizes up to 18" diameter. Sections fit snugly and swiftly together with standard metal sleeves and vapor barrier tape. Elbows and T fittings are also easily fabricated with a knife and factory-supplied templates. For all practical purposes, homeowner complaints and call-backs are eliminated!

ATTRACTIVE VAPOR BARRIER FINISH

G-B DUCT's uniformly thick walls are covered with an air-tight plastic vapor barrier sleeve, providing a smooth, attractive finish as well as positive protection against sweating and moisture build-up. With vapor barrier tape sealing all seams, a completed G-B DUCT system is neat and clean in appearance.

WINS READY APPROVAL

For good reasons, homeowners and builders are equally enthusiastic about G-B DUCT. There's no question that it saves the homeowner substantial money on fuel and electric bills. "Whisper-quiet" operation of heating and air conditioning systems is another very attractive feature—every foot of G-B DUCT contains millions of tiny sound absorbing cells. G-B DUCT has been approved by air conditioning manufacturers and local building codes for both air conditioning and heating use. It is labelled by Underwriters' Laboratories and therefore, meets requirements for FHA insured loans.

Discover for yourself why G-B DUCT is such an effective competitive weapon! Bid it just once, and you, too, will get good jobs, do good jobs and make good profits.

**FOR NAME OF YOUR NEAREST G-B DUCT DISTRIBUTOR,
WRITE**

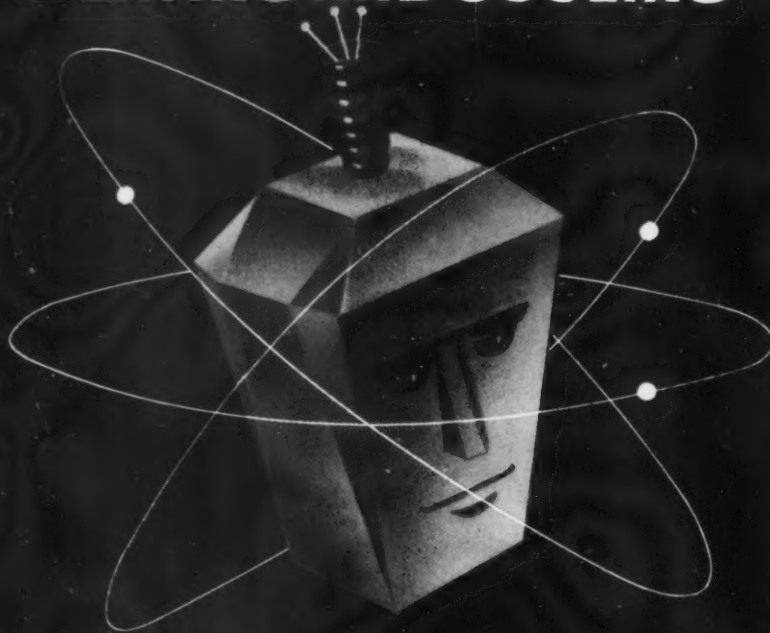
GUSTIN-BACON *mfg. Co.* 
204 W. 10th St., Kansas City, Mo.

Thermal and acoustical glass fiber insulations . . . Molded glass fiber pipe insulation . . . Couplings and fittings for plain and grooved end pipe

WILLIAMSON

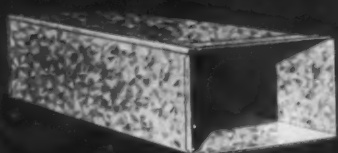
"Magic Brain"

HEATING AND COOLING

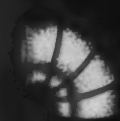


....works "Magic" for your sales!

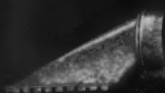
*Seal-Tite** DUCT, PIPE & FITTINGS



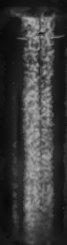
K. D. Rectangular Duct



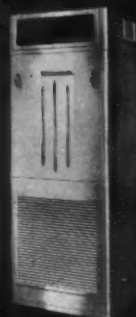
Adjustable Elbow



Top Take-Off



Snap-Lock Round Pipe



Space Console Unit

AIR

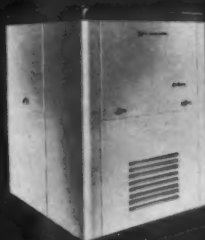
WARM AIR FURNACES



Special Series — Gas and Oil

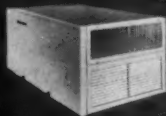


De Luxe Series — Gas

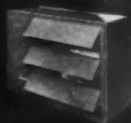


De Luxe Series — Oil

CONDITIONING UNITS



Self-Contained Unit
(cooling and condensing coils in one casing)



Air-Cooled Condensing Unit

THE INDUSTRY'S MOST COMPLETE LINE and THE INDUSTRY'S MOST UNIQUE SYMBOL

will help you make more
heating and cooling sales



WARM AIR FURNACES . . . to
fit any price range for the home owner
or the builder.



AIR CONDITIONING UNITS . . .
to fit practically any residential or
light commercial need.



**Seal-Tite^{*} DUCT, PIPE AND FIT-
TINGS** . . . to assure complete "magic
comfort" with "Magic Brain" equip-
ment!



NATIONALLY ADVERTISED to
home owners and builders. Complete
assortment of free literature, bro-
chures, sales aids and tested selling
plans.



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* T.M. Pat. Pend.

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Gentlemen:

Rush me information on your "MAGIC BRAIN" line of:

___ Heating Equipment ___ Cooling Equipment
___ "Seal-Tite" Duct, Pipe & Fittings

Name _____ Title _____

Firm _____

Address _____

City _____ Zone _____ State _____

GET ONE FREE!

Get 6 for 5 with Bank Note Coupons

**ATTENTION
ALL HEATING
CONTRACTORS
and DEALERS**



Thousands of contractors **SWEAR BY** not **AT** General Filters' Moisture-Matic Humidifiers. Life-time neoprene diaphragm with chrome-plated valve (no float to stick or clog!) make them fool-proof.

**SEE YOUR
HEATING JOBBER**

BANK NOTE COUPON DAYS are here for **ALL** Heating Contractors and Dealers. We are declaring a 20% dividend on all General Filters' "800" Moisture-Matic Humidifier orders placed with jobbers prior to October 15, 1960. With every order for five units one free humidifier is included — **SIX-FOR-FIVE** — every time you order during this period. No box-tops! No quotas! No strings attached! Use as many coupons as you like.

This is our way of saying **THANK YOU** for helping us tell-and-sell furnace owners everywhere on the outstanding performance and satisfaction provided by our Moisture-Matic Humidifiers! If you have not received your **BANK NOTE COUPONS** by mail — or if your jobber-wholesaler is out of them — write to us for your supply. They will be mailed promptly. Don't delay — make every service call a high-profit Moisture-Matic installation!

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Manufacturers of Famous General Fuel Oil Filters
GENERAL FILTERS, Inc.

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NOVI, MICHIGAN

Premier... the galvanized sheet that reflects the quality of your work permanently because the zinc coating is on for keeps!



Whatever the job . . . no matter how tough . . . PREMIER Galvanized Sheets offer two very important advantages:



1. PREMIER Sheets take every crimp, every lock seam, every draw, every twist, bead, fold and roll without flaking, chipping, cracking or peeling! You'll be amazed at how easily they form, how sparkling bright, good looking and strong the finished jobs are!
2. Long after the job is in place PREMIER Galvanized Steel will reflect the permanence and quality of a good job well done . . . the kind of work that builds good will . . . and repeat orders.

Galvanized by the most modern continuous process PREMIER Galvanized Sheets have the *tightest zinc coating ever*. Call today for steel you need!



**GREAT WESTERN
STEEL COMPANY**
ESTABLISHED 1918

CHICAGO Call HEmlock 4-5800
MILWAUKEE Call Hilltop 4-3092

General Office and Plant:
2300 W. 58th St., Chicago 36, HE 4-5800
Milwaukee Division: 2475 W. Hampton Ave., Hilltop 4-3092
REPRESENTATIVES IN PRINCIPAL MIDWESTERN CITIES

PROFIT WITH THE LEADER OF THE CUSTOM HEATING MARKET SELL THE NIAGARA SERIES 50 AIR CONDITIONER

Quality and performance are the two most important factors required today to meet the heating demands of the replacement and custom heating markets.

The NIAGARA Series 50 Air Conditioner more than fulfills these two requirements.

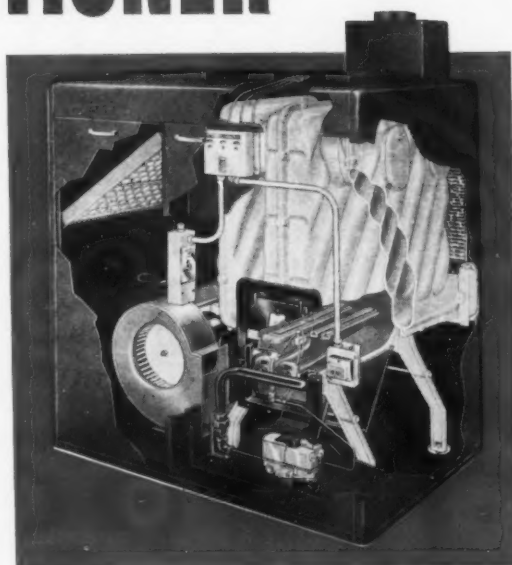
Here is truly an exceptionally deluxe furnace with *PROVED DEPENDABILITY* and *PROVED ECONOMY*.

One of the most significant features of the NIAGARA Series 50 is the famous NIAGARA cast-iron heat exchanger with copper-chromium-iron alloy combustion chamber, guaranteed for 20 years.

In addition, a 3-speed direct-drive blower, completely automatic controls, and a rich, modern-styled cabinet go together in making the NIAGARA Series 50 the finest heating unit available for the discriminating, quality-conscious buyer.

For summer cooling a NIAGARA refrigerated air-cooling unit can be added to work in conjunction with the Series 50 furnace.

Available in various capacities, the NIAGARA Series 50 will give customers years of utmost comfort with trouble-free operation—and will provide you with a greater profit.



Cut-a-way view of NIAGARA Series 50



**MAKE
NIAGARA
YOUR
PROFIT
LINE**

Right now there are opportunities for choice NIAGARA dealerships.

Write or phone for full particulars on how you can sell the NIAGARA line and Profit with the Leader.

NIAGARA SELLS A COMPLETE LINE

The NIAGARA Series 70 furnace line includes upflow, counterflow, basement or horizontal models, that burn gas or oil, and are available in capacities to fit every requirement. This budget line is built to the same high standards of quality as the Series 50.

NIAGARA Series 70 Basement Model

NIAGARA FURNACE DIVISION

THE FOREST CITY FOUNDRIES COMPANY

2500 WEST 27th STREET • CLEVELAND 13, OHIO

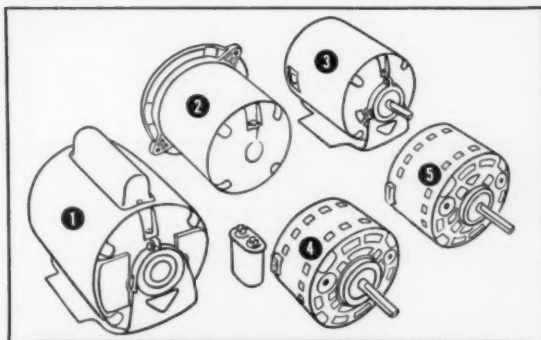
PHONE—Tower 1-5040

When you need a motor for heating equipment **CHANCES ARE 100 TO 1 IT'S HERE**

... because these motors represent General Electric's complete line of years-ahead motors for oil burners and belt- or direct-drive furnace blower applications.

They'll provide *extra reliability* because of their built-in quality, the result of G-E engineering know-how and manufacturing experience. You'll find them *easy to install*—because they're light and small, and built with your requirements in mind. And General Electric offers *fast, local service*—the result of a nationwide network of motor service stations, backed by twenty General Electric service experts who keep these stations up-to-date on the latest motor service techniques.

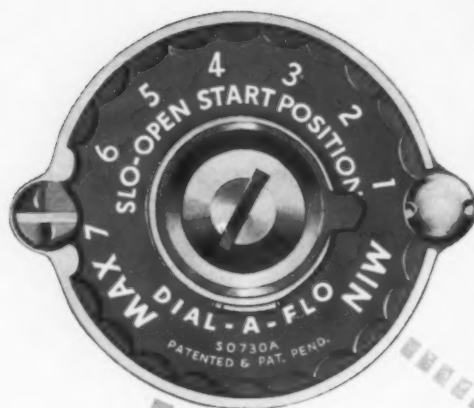
That's what we mean when we say you get **MORE THAN A MOTOR** with General Electric Form G motors. You'll find it pays to specify General Electric Form G motors on the heating equipment you install. And replacement motors are available at your local G-E distributor. For more information write to Section 738-12, General Electric Company, Schenectady 5, New York.



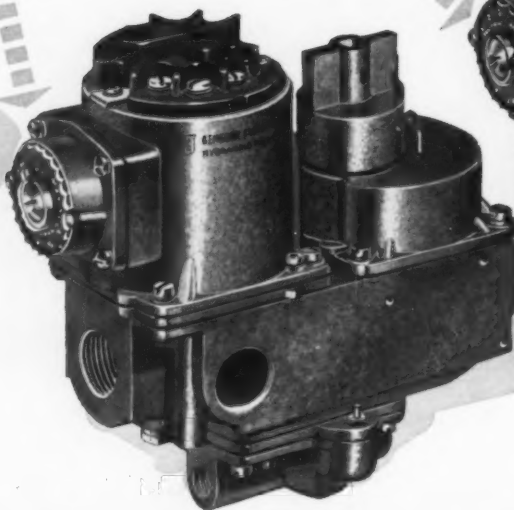
- 1 Capacitor-start motor for belt-driven applications
- 2 Oil-burner motor
- 3 Split-phase motor for belt-driven applications
- 4 Permanent split-capacitor motor for direct-drive applications
- 5 Shaded-pole motor for direct-drive applications.

Progress Is Our Most Important Product

GENERAL  ELECTRIC



quiet
low flame
ignition
every time



Reliable Dial-A-Flo adjusts to your burner needs! Here's the only way to get quiet, low flame ignition on every burner cycle. It's DIAL-A-FLO, the General Controls step opening gas valve that stops flame "roll-back" and attendant pilot problems. Only factory calibrated DIAL-A-FLO gas valves have the "Rangeability" that permits heating equipment manufacturers to use just one valve for most of their input requirements. DIAL-A-FLO is the step opening gas valve that is factory calibrated to eliminate manufacturing variation and ensure "Repeatability." Dependable DIAL-A-FLO is available on all Hydramoid (silent, silicone cushion) gas valve operators. Phone your local General Controls factory branch office today for complete information on DIAL-A-FLO. You'll find it as near as the classified section of your local telephone directory.

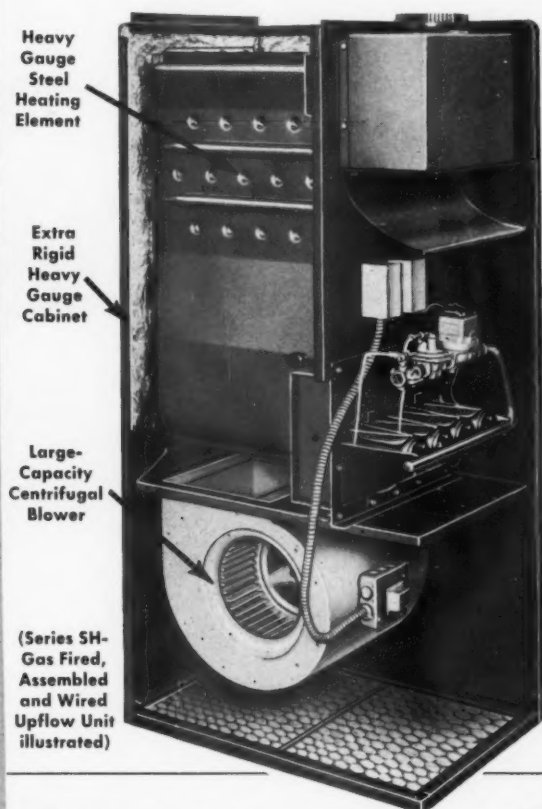
FROM GENERAL CONTROLS — field engineering service out of 44 factory branch offices... stock in conveniently located warehouses throughout the United States, Canada and Western Europe. Call in your General Controls factory representative today. He's an expert in heating controls.



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Heating Controls for Product or Process
Glendale, Calif. • Chicago, Ill. • Guelph, Ontario, Canada
also plants—44 factory branch offices serving
the United States, Canada and Western Europe

HERE'S HOW *Luxaire* GIVES YOU MORE FURNACE for the PRICE!



Over the years, your increasing demand has made it evident that the desirable qualities of Luxaire Heating and Air Conditioning Units far exceed their competitive price.

For Luxaire puts quality where it counts — not in glittering trim, unnecessary gadgetry or complicated design. Luxaire features the heavy construction and uncomplicated design that give your customers better performance, lasting durability and built-in provision to add summer air conditioning!

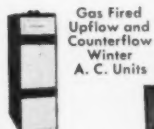
There are furnaces costing more than Luxaire. Luxaire surpasses them in excellence!

There are furnaces costing less than Luxaire. They do not measure up to Luxaire!

With Luxaire you need not choose between excellence and a low price; Luxaire gives you both!

If you are seeking furnaces that offer real excellence at a really competitive price, don't be switched!

See your Luxaire jobber, today. Enjoy a favorable price without the penalty of a heavy stock!



Gas Fired
Upflow and
Counterflow
Winter
A. C. Units



Gas Fired
and Oil Fired
Horizontal
Furnaces



Gas or
Oil Fired
Basement
Type
Winter
A. C. Units



Oil Fired
Upflow and
Counterflow
Winter A. C.
Units

Oil Fired
Basement
Type Winter
A. C. Units



Gas Fired
and Oil
Fired
Gravity
Furnaces

THE C. A. OLSEN MANUFACTURING COMPANY • ELYRIA, OHIO
Luxaire HEATING & AIR CONDITIONING UNITS



You can tell a Metalbestos Man
By the Gas Vent Calculator he uses!

This handy new pocket computer is the only device of its kind to give correct answers in seconds to the most complicated vent design questions. Who's it for? Why the man who installs Metalbestos, of course! It allows him to make his "take-offs" on the spot, give fast accurate bid estimates, save precious minutes on the job. Just one more scientific selling tool from Metalbestos — it's yours without charge.

AVAILABLE ONLY FROM METALBESTOS • Gas Vent Calculator • Reader's Digest Reprints • Color Slide Film "Heat in Harness" • Venting Schools • Vent Installation Handbook • Gas Vent Service Bulletins • Safety System Seals • Sales & Technical Literature • Ad & Article Reprints • Direct Mail Materials.

See your Metalbestos distributor or write Dept. B-2.



METALBESTOS DIVISION
 WILLIAM WALLACE COMPANY
 BELMONT, CALIFORNIA

MANUFACTURING PLANTS IN BELMONT, CALIF. • LOGAN, OHIO



The Natives are Restful Tonight...

THEY'RE
ENJOYING
THE COOLING
COMFORTS OF

AUER
"Perfusaire"
IN THEIR HUTS!



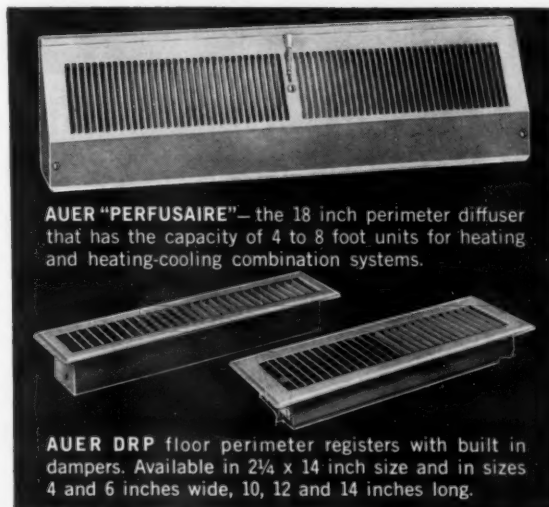
Like the Restful Natives...

Sheet metal contractors everywhere are discovering amazing savings in time, labor and costs by using Auer "Perfusaire" perimeter registers. They have found that installation time is cut in half!

Perfusaire, designed for use in or against plastered walls, inside or outside the base-board, installs quickly...easily...without cutting or fitting. It hugs the wall without unsightly gaps...eliminates use of fillers or moldings. It is the answer to difficult uneven wall installations!

The Auer Perfusaire is equipped with a built-in damper to provide positive, controlled system balancing, making it ideal for heating and combination heating-cooling perimeter systems.

For complete details on how you can minimize installation time and increase profits with Perfusaire, ask for Bulletin P-54.



AUER "PERFUSAIRE"—the 18 inch perimeter diffuser that has the capacity of 4 to 8 foot units for heating and heating-cooling combination systems.

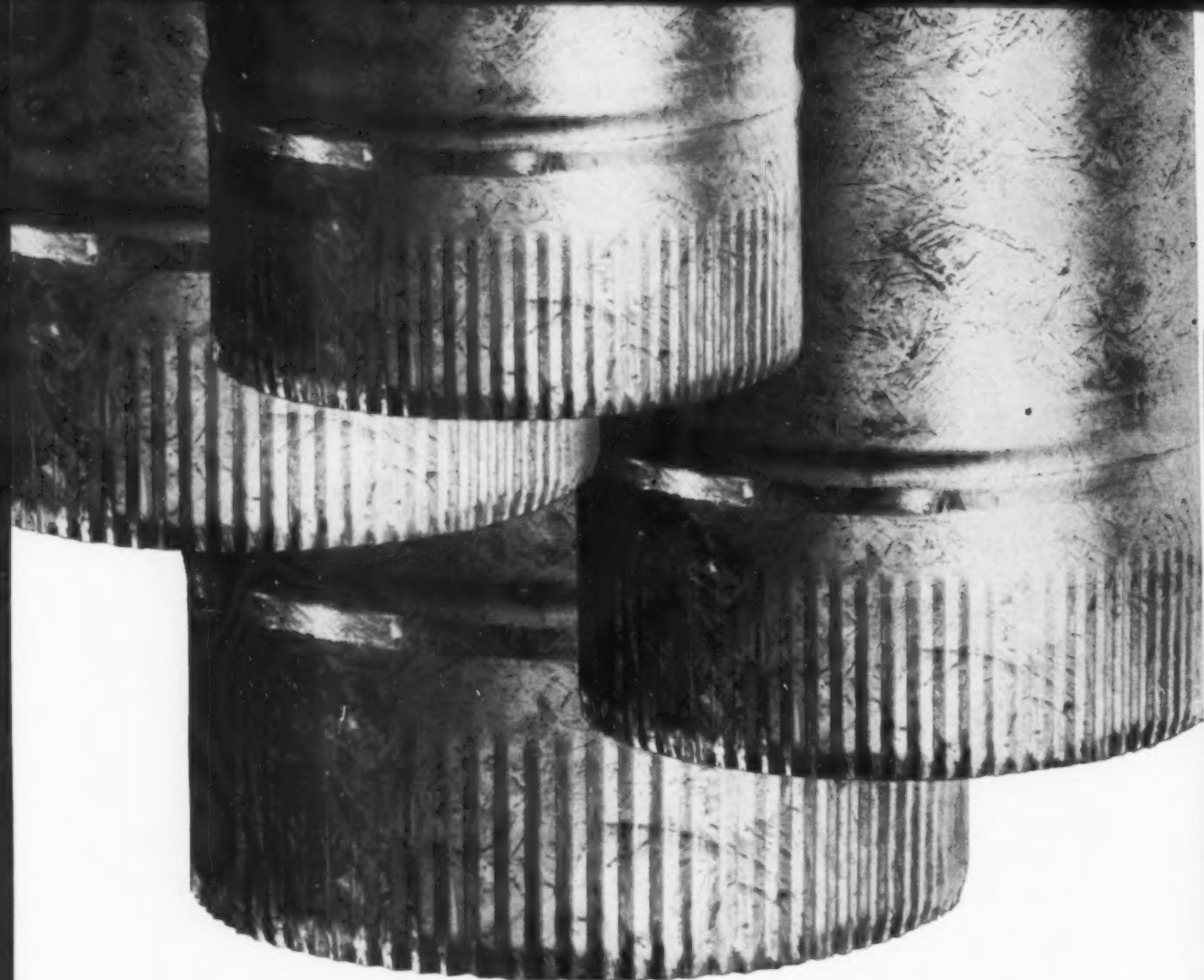
AUER DRP floor perimeter registers with built in dampers. Available in 2½ x 14 inch size and in sizes 4 and 6 inches wide, 10, 12 and 14 inches long.

Auer
REGISTERS
and GRILLES

THE AUER REGISTER COMPANY

"REGISTERS AND GRILLES FOR EVERY HEATING AND COOLING NEED"

6602 CLEMENT AVENUE • CLEVELAND 5, OHIO



The more crimping you have to do, the more satisfied you will be with Weirkote Zinc-Coated Steel. There's no peeling, no chipping, no flaking. Work it to the limits of the steel base itself and the zinc coating remains intact assuring you of the complete corrosion protection that only zinc can give. Weirkote is made that way—to retain its protective zinc coating no matter how tough the forming and bending operations. A Weirton representative will gladly supply full information on Weirkote—another fine product of the Weirton Steel Company, Weirton, West Virginia.



*Look for the STEELMARK
on the products you buy; place
it on the products you sell.*

WEIRTON STEEL
Weirton, West Virginia



Weirton Steel is a division of **NATIONAL STEEL CORPORATION**

Weirkote will also be available in 1961 from National's Midwest Steel Division, Portage, Indiana.

Idea Exchange for Dealers, Contractors

Bulletin Lists Ways to Maintain Volume Despite Competition from Electric Heat

Best approach is to use your experience and knowledge concerning home comfort to show leadership for better "controlled climate"

HEATING AND AIR CONDITIONING wholesalers located in areas where direct electric resistance heating is growing in annual volume, in many cases, are faced with a decrease in sales to their warm air heating dealer-contractors. One heating and air conditioning wholesaler serving the Des Moines, Waterloo and Sioux City, Iowa, areas — Heating Wholesalers Co. — is doing something about helping its customers maintain annual volumes to which they've become accustomed.

Heating Wholesalers Co. is managed by Fred R., Frank M. and James L. Green, all of whom have studied the public's attitude toward electric heating. This trio has developed a four-page instruction bulletin directed toward assisting dealer-contractors in selling "true home comfort systems."

What Not to Do

The bulletin, under the headline, "What Not to Do," states:

"When making a sales presentation it is not wise to knock the competition's products and ideas. And furthermore, the electrical industry promotion is too big to fight — let's join them and show leadership for better 'controlled climate.'"

"First, don't tell people you don't have electric heat. A person who really wants electric heat will usually get it some way or another.

"Secondly, avoid becoming involved in a fuel cost comparison. True, electric heat costs more today than either gas or oil. You can easily prove this with Btuh charts. But remember, gas and oil could go up and electricity may remain where it is."

Positive Sales Ideas

Under a headline of "What to Do," the bulletin states:

"There are hundreds of positive sales ideas you

can use to promote 'controlled climate.' Here are a few suggestions.

"Before starting, let's review several positive facts about our industry:

1) We have experience and knowledge concerning home comfort systems.

2) We sell all products necessary for such a system — not just a few.

3) We can calculate heat loss and heat gain and apply the results to system design. Other trades are not skilled in this work.

4) We can install and service these systems.

"A key word around which a magnificent sales story can be told is 'AIR.'"

"Control of air is the secret to the satisfactory function of the whole system.

"It should be pointed out to the prospect that in order to provide comfort for the human body, we must condition the air surrounding the body. The air must be:

- 1) Neither too hot nor too cold.
- 2) Neither too moist nor too dry.
- 3) Free from contamination.
- 4) Adequate.
- 5) Not stagnant.

"It should be even more apparent that in order to do all of this, you need a machine (or combination of machines) to perform these functions.

"Since we are going to condition the air within a given structure by a machine we will have to circulate the air to the machine and then back into the structure.

Stress Advantages

"Make the prospect see that an air circulation system is required for a home comfort system utilizing the proper machines to condition the air plus a circulating system to put the air back.

(Continued on page 152)

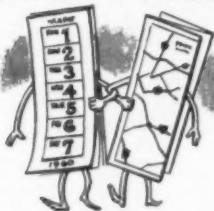
SEEKING more new plumbing
heating...air conditioning contracts?



Have a feeling you're missing
good opportunities to bid? Like to

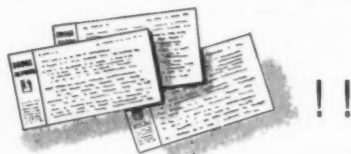


uncover more jobs that are
"tailor-made" for you...when and where



you want them? You need

daily Dodge Reports



DODGE REPORTS are individual building project reports. They're mailed to you daily. You get **REPORTS** on just the types of building you're interested in—in the area where you do business. They tell who's going to build what and where...whom to see...when bids are wanted...who else is bidding...who gets which awards.

When you use **DODGE REPORTS**, you always know what's coming up. You don't depend only on invitations to bid. You concentrate on jobs you *know* will be profitable.

If you do business anywhere in the 37 Eastern states, you need **DODGE REPORTS**.

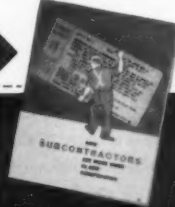
SEND FOR THIS FREE BOOK

F. W. Dodge Corporation, Construction News Division
119 West 40th Street, New York 18, N. Y., Dept. AA90

Send me the book: "How Subcontractors Get More Work in New Construction" and let me see some typical Dodge Reports for my area. I am interested in the general markets checked below.

- ☐ House Construction ☐ General Building
☐ Engineering Projects (Heavy Construction)

Area _____
Name _____
Company _____
Address _____
City _____ Zone _____ State _____

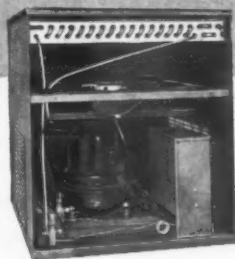


F.W. DODGE CORPORATION

Dodge Reports

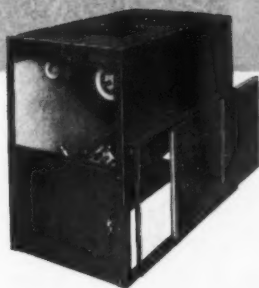
HELP
PLUMBING AND HEATING CONTRACTORS
GET MORE BUSINESS

trend-setting COOLING UNITS



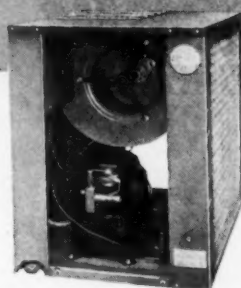
New 2 and 4 Ton Condensing Units Top-mounted condenser coil reduces air noise to a minimum. Constructed for unsheltered outdoor installation. Peak performance.

Round, Plenum-Type Evaporator Coil Provides more cooling surface in less space. Improved, vertical condensate drainage.



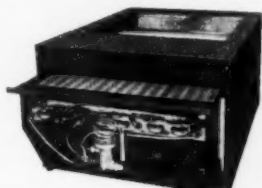
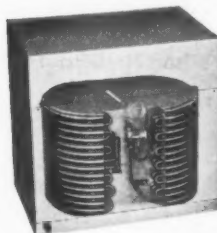
New 3, 4 and 5 Ton Blower-Coil Units Designed for horizontal or vertical discharge. Accessory Discharge and Intake Plenum-Grilles available. (Shown vertical with side air intake.)

Flat, Duct-Type Evaporator Coil Housed in heavy-gauge enameled cabinet. Built-in drainage pan.



3 and 5 Ton Condensing Units Centrifugal Blower for ducted installation. Constructed for unsheltered outdoor installation. Peak performance.

Counterflow Evaporator Coil Readily slides into heavy-gauge cabinet. Zinc-coated drainage trays trap condensate.



PLUS matched-performance Furnaces



Gas and Oil
Winter A. C.
Units ...
Plenum Type
Evaporators.



Gas and Oil
Counterflow
Units ...
Counterflow
Evaporators.



Gas and Oil
Horizontal Furnaces ...
Duct Type Evaporators.



Gas or Oil
Basement
A. C. Units ...
Plenum Type
Evaporators.



Gas or Oil
Combination
Year 'Round
A. C. Units
... Air or
Water Cooled.

Front-runner with a complete line of 2, 3, 4 and 5 Ton Air Cooled Summer Air Conditioning Units, Moncrief has set a new trend by providing excellence at low prices.

Uncomplicated Moncrief Condensing Units house the heavy-duty compressor, large-area condenser coil and powerful fan in a ruggedly weatherproofed cabinet of 16-gauge, zinc-coated steel. Unlimited accessibility to service valves and electrical parts makes installation and maintenance easy and convenient.

With a choice of Plenum, Duct or Counterflow Evaporator Coils —plus, new 3, 4 and 5 Ton Blower Coil Units that can be installed

for either horizontal or vertical discharge and end, bottom or side intake — you are equipped for practically any application.

In addition, Moncrief Winter Air Conditioning Furnaces are furnished with large-capacity blowers as standard equipment, so that you have maximum air deliveries at minimum expense — plus, the trouble-free heating performance for which Moncrief Furnaces are famous.

At Moncrief's competitive prices, these advantages add up to increased profits without the disadvantage of a large inventory, because your Moncrief Wholesaler carries your stock for you. Call him, now.

MONCRIEF

THE HENRY FURNACE

HEATING AND AIR CONDITIONING UNITS

MONCRIEF

SINCE 1895

COMPANY • MEDINA, OHIO

FURNACE PIPE AND FITTINGS

Implied "Payment in Full" Doesn't Hold Up

**Certain conditions must
be agreed upon or understood by both parties
before a payment closes an account**

WHEN A SALESMAN ended his employment the manager of a heating and air conditioning company handed him a check for \$565.32. "He handed me that check," said the salesman, "and told me that was all I was going to get."

Later, the salesman sued for approximately ten times that amount which he claimed was due him as unpaid commissions. The company argued that the acceptance by the salesman of this check closed the account, because it was an accord and satisfaction and that the salesman could not recover anything in addition.

Essential Elements

A rule of law which the court used in its decision is that such a payment must be offered not only in satisfaction and full payment of the demand, but the party to whom the money is due must be told that fact in a clear and unmistakable manner.

It is also essential that the one to whom the money is owed shall accept it with the understanding that the payment closes the account.

Then of the circumstances of this case which the court held did not amount to an accord and satisfaction, or settlement in full, it said, "Here the evidence indicates that the tender of the employer's check was not accompanied by

any conditions, either oral or in writing, on the check or elsewhere, that acceptance by the payee was tantamount to a satisfaction of all claims asserted by the salesman against the company. Nor was there any evidence to indicate that the tender was accompanied by any conditions or representations which would likely effectuate an accord and satisfaction if accepted by the salesman."

Court Rejects Protest

Many years ago a physician sent a bill of \$670 to a patient for medical services. Surprised at the amount, the patient asked the physician to itemize the account. After it was itemized the patient sent a check for \$400, stating that it was in full settlement of the account.

The physician cashed the check and sued for the balance of \$270. Of the letter sent with the check and the acceptance of the check by the physician, the court made this statement:

"The tender and the condition could not be dissevered. The one could not be taken and the other rejected. The acceptance of the money involved the acceptance of the condition and the law will not permit any other inference to be drawn from the transaction.

"Under such circumstances the assent of the creditor to the terms

proposed by the debtor will be implied and no words of protest can affect the legality."

When No Dispute Occurs

The situation is different when no dispute over the amount due has occurred between the parties. "Where the demand is liquidated," said the court, "and the liability of the debtor is not in good faith disputed, a different rule is applied."

"In such cases the acceptance of a sum less than is due will not discharge the debt even if a receipt in full is given.

"To constitute an accord and satisfaction," said the court, "it is necessary that the money should be offered in satisfaction of the claim and the offer accompanied with such acts and declarations as amount to a condition. The condition is that if the money is accepted, it is done so in satisfaction and that the party to whom it is offered is bound to understand that his acceptance is subject to such conditions.

"When a tender or offer is made, the party to whom it is made has no alternative but to refuse or accept it upon such condition. If he takes it, his claim is cancelled and no protest, declaration or denial, so long as the condition is insisted on, can vary the result."

THE NEW CARRIER AUTOMATIC AIR PURIFIER

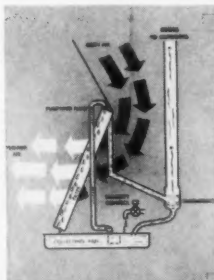
...provides whole-house odor removal...whisks away even such smells as onions, cabbage and stale tobacco from every room in minutes

...controls winter humidification...provides just the right amount of moisture all the time—never too little or too much

...automatically cleans air...reduces dust, dirt and pollen automatically with constant efficiency for a healthier home

Here are three big sales points, all wrapped up in the Carrier Air Purifier, the first practical self-cleaning device of its kind. And when teamed with a Carrier furnace and a Carrier cooling system, it gives your prospects complete 12-month air conditioning.

Get all the facts on how the new Carrier Automatic Air Purifier can open up new sales opportunities for you. Call your Carrier Distributor listed in the Yellow Pages, or write Carrier Air Conditioning Company, Syracuse 1, N. Y.



HOW THE CARRIER AIR PURIFIER WORKS The filter is constantly bathed with a purifying fluid called Carrex which absorbs odors and washes dirt into collecting pan. The fluid circulates through a regenerator, where odors are removed and water minerals are precipitated to keep humidifying surface clear. A humidistat controls humidity level.



COMPACT AS A MODERN FURNACE The Carrier Air Purifier (unit on the right) replaces the return air duct on an upflow furnace, occupies little more space than a modern heating plant.



unfair to onions!

Carrier Air Conditioning Company

A DIVISION OF CARRIER CORPORATION



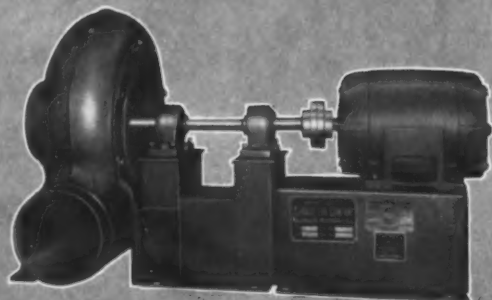
ARRANGEMENT 1



ARRANGEMENT 2

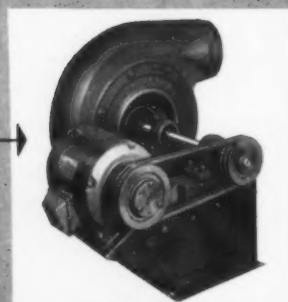


ARRANGEMENT 4



ARRANGEMENT 3

NEW
ADDITION



ARRANGEMENT 5

Presenting... **the new line of CLARAGE Type CI Exhausters**

Volumes to 3800 CFM, pressures to 18", temperatures to 750°F., six sizes, three wheel types, five arrangements as shown above, adjustable to any of the eight standard air discharge directions.

Result: fan equipment uniquely well suited to nearly every service imaginable. The uncomplicated, heavy construction, featuring cast iron housings and sideplates, makes the Type CI the natural selection for such severe applications as exhausting from grinding,

woodworking, and other machines . . . conveying materials ranging from fibers to grains . . . removing smoke and fumes . . . furnishing industrial process air . . . handling chemical and hot gases.

Write for new Catalog 707 containing performance tables, dimensions, and system data. Get acquainted with the advantages you'll enjoy by choosing Clarage Type CI Fans for your next requirements. CLARAGE FAN COMPANY, Kalamazoo, Michigan.

Dependable equipment for making air your servant

CLARAGE FAN COMPANY

Kalamazoo, Michigan

SALES ENGINEERING OFFICES IN ALL PRINCIPAL CITIES • IN CANADA: Canada Fans, Ltd., 4285 Richelieu St., Montreal



Quiet Century motors move warm air through thousands of homes like this one



Hoffman Estates, Roselle, Illinois

One reason for the wide acceptance of Century fhp motors for furnace blowers is their unusually quiet operation. Their cushion bases, sleeve bearings, and dynamically balanced rotors virtually eliminate hum, rumble, and vibration. This means that you can install a Century equipped furnace in today's compact homes, in basements or adjacent to living areas.

Century motors are dependable, too. You spend less time making nuisance service calls because Century furnace blower motors are specifically designed for warm air furnace operation. Heavy "Mylar" slot insulation and high temperature insulating varnish significantly add to electrical strength. PERMAWICK lubrication of the sleeve bearing further assures trouble-free operation by maintaining a perfect oil film on the journal surfaces.

Century motors are available in 48-frame and 56-frame (where one-half horsepower capacity and larger is required) designs, as well as in two-speed models for combination heating and cooling service. For specifications and ordering information, contact your nearest Century Electric Sales Office or Authorized Distributor.



CENTURY ELECTRIC COMPANY

St. Louis 3, Missouri Offices and Stock Points in Principal Cities

Century
60-14

WHAT ASSOCIATIONS ARE DOING

Milwaukee Dealers Hold Annual Stag Picnic



REGISTRATIONS were brisk as 135 members and guests of the Milwaukee association began arriving. Registering is C. Franchino. Behind him, Mike Poja welcomes Wm. Boyer. Others on the welcoming committee are Lyle O'Leary and Robert S. Schmieder

PORT WASHINGTON, WIS. — Perfect weather formed the setting for the annual stag picnic of the Sheet Metal Contractors' Association of Milwaukee. One hundred and thirty-five dealer-contractors, wholesalers, and manufacturers' personnel gathered to play golf, baseball, cards or just exchange points of view. Members of the state association were invited and a number accepted. Some came from cities as distant as Madison (100 miles west) and Green Bay (100 miles north).

The picnic began about 10 a.m., when early golf-

(Continued on page 96)



THIS FOURSOME'S SCORES (on the 16th hole) matched the perfect weather. From left are Cy Roberts, George Zahn, Ralph Winkler and Ben Brozek. At right, Jim Miner and Tony Demshar "choose up" for baseball, while umpire John Klatt supervises



Fox Valley Members Relax, Enjoy Field Day Pastimes

AURORA, ILL. — One hundred and fifteen members of the Fox Valley Furnace and Sheet Metal Contractors' Association and their guests forgot the problems of the contracting business at the annual field day. Cribbage, golf, horseshoe pitching and music by a three-piece roving combo helped provide diversion from the problems of the business world.

The program committee consisted of Harry Gengler, George Bushman, Art Warren and Don Glossop.



CRIBBAGE AS PASTIME regained much of its former popularity with members and guests of the Fox Valley Furnace and Sheet Metal Contractors' Association

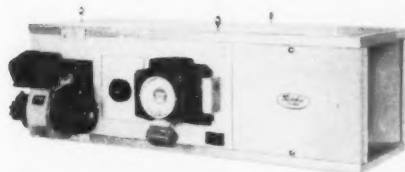


NO ANNUAL FIELD DAY would be complete without its horseshoe pitching contest and the jovial atmosphere created by covered ringers and questionable proximity situations

UNSURPASSED for Oil or Gas

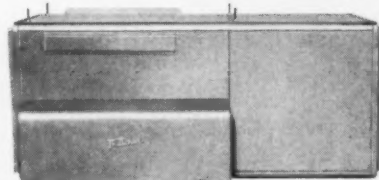
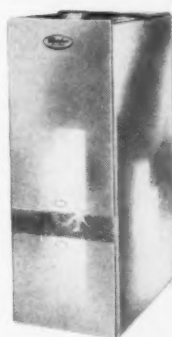
Blue Ribbon LH Series . . . Oil or Gas-Fired

Features Lo-Hi-Boy design with return air compartment. Small, compact units . . . designed for standard installations . . . deliver high heat output. The oil unit features a Cerafelt Combustion Chamber.



Blue Ribbon SCO Series . . . Oil Fired

This dual purpose, oil-fired furnace can be used as either a horizontal or counterflow unit. Stocking the SCO reduces your inventory . . . yet increases your stock . . . because each unit can be used for either of the two applications.



G5 Horizontal Gas-Fired

Sectional type heat exchanger and cast iron drilled port burner. This horizontal furnace is the answer to your crawl space, ceiling and attic requirements for a gas unit.



CG Counterflow Gas-Fired

Slotted cast iron burners and drawer type blower. The ideal solution to critical space problems requiring ground floor installation. Fits easily into alcove, closet, or utility room.

Thatcher

WINTER AIR CONDITIONERS

SINCE 1850, ONE OF THE LEADING MANUFACTURERS OF HOME HEATING EQUIPMENT

The Thatcher Full Line includes units for oil and gas; in Lo-Hi-Boy, Horizontal and Counterflow models. They meet today's trend to small compact units with high heat output. Thorough engineering with balanced components, careful assembly and inspection insure satisfactory on-the-job operation. All models factory assembled and wired. Write for details.



THATCHER FURNACE COMPANY
Dept. AA-9, Garwood, New Jersey
BOILERS • FURNACES • AIR CONDITIONERS

2340



COMBINATION PATTERN
No. U412, 12" only.

SNIPS FOR EVERY SERVICE



HEAVY DUTY PATTERN
No. U416, 16" only.



CIRCULAR CUTTING PATTERN
No. T412, 12" & T47, 7".

STANDARD PATTERN, No. S410
Seven other sizes, 7" to 14".



AVIATION SNIPS, No. V19R
Right Hand, Cuts to left.

AVIATION SNIPS, V19L
Left hand, cuts to right.



NEOPRENE INSULATING SLEEVES
Available for all Aviation Snips. Here shown
on No. V19S, straight cut.

Crescent 'Tinnors' Snips are forged of selected steel and blades ground on special grinding machines. They are hardened by Crescent's own selective induction process to insure long, satisfactory service. These easy-cutting, well-balanced snips are made in four patterns; standard, circular cutting, combination and heavy duty.

Sold by hardware dealers and industrial distributors everywhere.

AVIATION SNIPS. Keenly ground, hard, tough alloy steel blades with machine serrations...can be factory reground. Compound leverage produces tremendous shearing power. Three patterns.

CRESCENT TOOLS

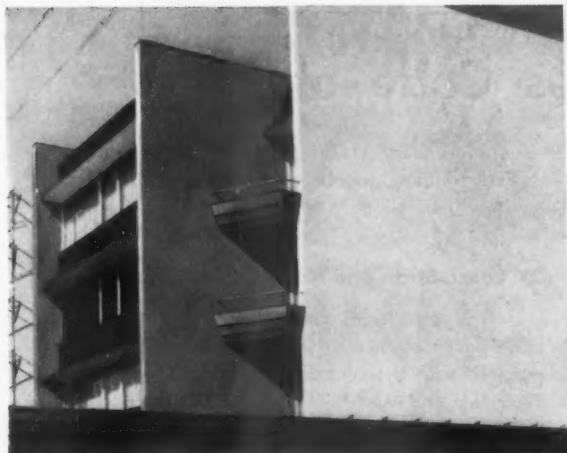
Give Wings to Work

*Sign of the Artisan
Symbol of Excellence*

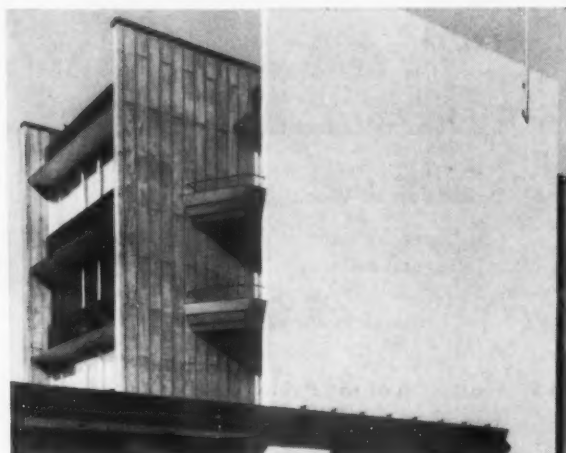


Crescent is our trade-mark, registered in the United States and abroad, for wrenches and other tools. Sold by leading distributors and retailers everywhere and made only by
CRESCENT TOOL COMPANY, JAMESTOWN, NEW YORK

HOW REVERE COPPER



makes buildings alluring



as well as enduring

Copper is far from passé in modern building construction. In fact, it's being used more and more and in more different forms than ever before. The main reasons are: 1-You can do so many things with copper. 2-It is so easy to work and fabricate. 3-It has unusual flexibility in design. 4-Its endurance has been proved over the centuries.

In this instance the architect, WILLIAM B. HARVARD of St. Petersburg, Florida, having used copper on the balconies and front fascia, decided that copper would be the perfect sheath for the large wall surfaces, and by using vertical pans of copper a most unusual and decorative effect

was obtained. The copper was then treated to produce a soft green weathered look to contrast with the white marble. Result: a striking, enduring edifice for the ST. PETERSBURG FEDERAL SAVINGS & LOAN ASSOCIATION, St. Petersburg, Florida.

The 5,000 lbs. of 16 oz. Revere Cold Rolled Copper used, were applied by DANIELS & JONES SHEET METAL WORKS, St. Petersburg. Copper was furnished by the Revere Distributor, HORNE WILSON, INC., Tampa.

Next time you order copper from your distributor be sure to specify Revere . . . oldest name in copper.



REVERE COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, and Clinton, Ill.; Detroit, Mich.; Los Angeles, Riverside and Santa Ana, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities. Distributors Everywhere.

Pennsylvania Passes Code of Ethics



CODE OF ETHICS is introduced by Bernard Lawrence, president, Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania

ERIE — By unanimous vote, delegates to the 12th annual convention of the Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania passed on a code of ethics presented by president Bernard Lawrence, who said:

"It is the aim of this association to maintain the position of confidence and respect it has achieved in the air conditioning, warm air heating, sheet metal and roofing fields.

"As an association, we recognize and seek those benefits which accrue from compliance with high ethical standards. The function of such a code of ethics is to represent the minimum requirements for fair competition and honorable dealing."

The code states:

1) Fair and Bona Fide Competition

... is a fundamental service of our industry, to which dealer-contractors and owners are entitled. Any act or method in restriction thereof is a breach of faith toward this association.

Members should neither seek nor accept information concerning a competitor's bid, nor by any method suppress free competition. It is improper for owners or customers to use bids in an effort to induce any contractor to lower his figures.

It is declared to be improper and unethical for a contractor to cooperate in or encourage bid shopping or bid peddling practices by prime contractor. It is also improper and unethical for a member of Sheet Metal, Air Conditioning and Roofing Contractors' As-

sociation of Pennsylvania to engage in bid shopping or bid peddling practices among his material and equipment suppliers.

2) Local, State and National Cooperation

... in matters of mutual concern should be the basic policy of members of this association in their relations with the contracting, architectural, and engineering professions. The purpose of such cooperation is to establish a clear conception of respective functions and responsibilities and to guard against uneconomical or improper practices.

3) Cooperation with Government Agencies

... including compliance with existing codes and ordinances designed and enacted to protect the public health, welfare and safety is the duty of all contractor members of this association.

4) Evaluation of Work

... is based by the contractor on his experience, his facilities and his ability. Disparagement of competitors as to their character, credit standing or ability to perform work is improper and unethical.

5) Protection of the Public

... against improper practices by industry members will be furthered by this association, which will take whatever steps it deems necessary to prevent such practices.

Milwaukee Picnic —

(Continued from page 92)

ers began to arrive. Soft drinks and cold beer were on tap all day, and a free lunch was served at noon.

The annual baseball game where the dealer-contractors as one team played the suppliers' team resulted in a 9 to 3 win for the suppliers.

Dinner and the awarding of golf and door prizes concluded the get-together.

The picnic committee was headed by Lyle O'Leary. Assisting him were Karl Brozek, Mike Poja, Ben Brozek, Robert Holming and Robert S. Schmieder.

(More association news on page 100)

YOU GET ALL 3

WITH THE BRYANT 337



1. EXCLUSIVE TRI-ALLOY HEAT EXCHANGER. Extra long life... exceptional resistance to high temperatures, corrosion, condensation... quick heat transfer.

2. LOW VOLTAGE CONTROLS
Cost less to install than line voltage type... sensitive response gives better temperature control.

3. AUTOMATIC FAN SWITCH
Delays starting fan until unit has warmed up—no cold blasts. Keeps fan running after gas shuts off until all usable heat is exhausted.

PLUS—Bryant's unique fan-motor assembly. Rotating end bell motor centers load between bearings reducing bearing wear 75%.

Extremely quiet operation.

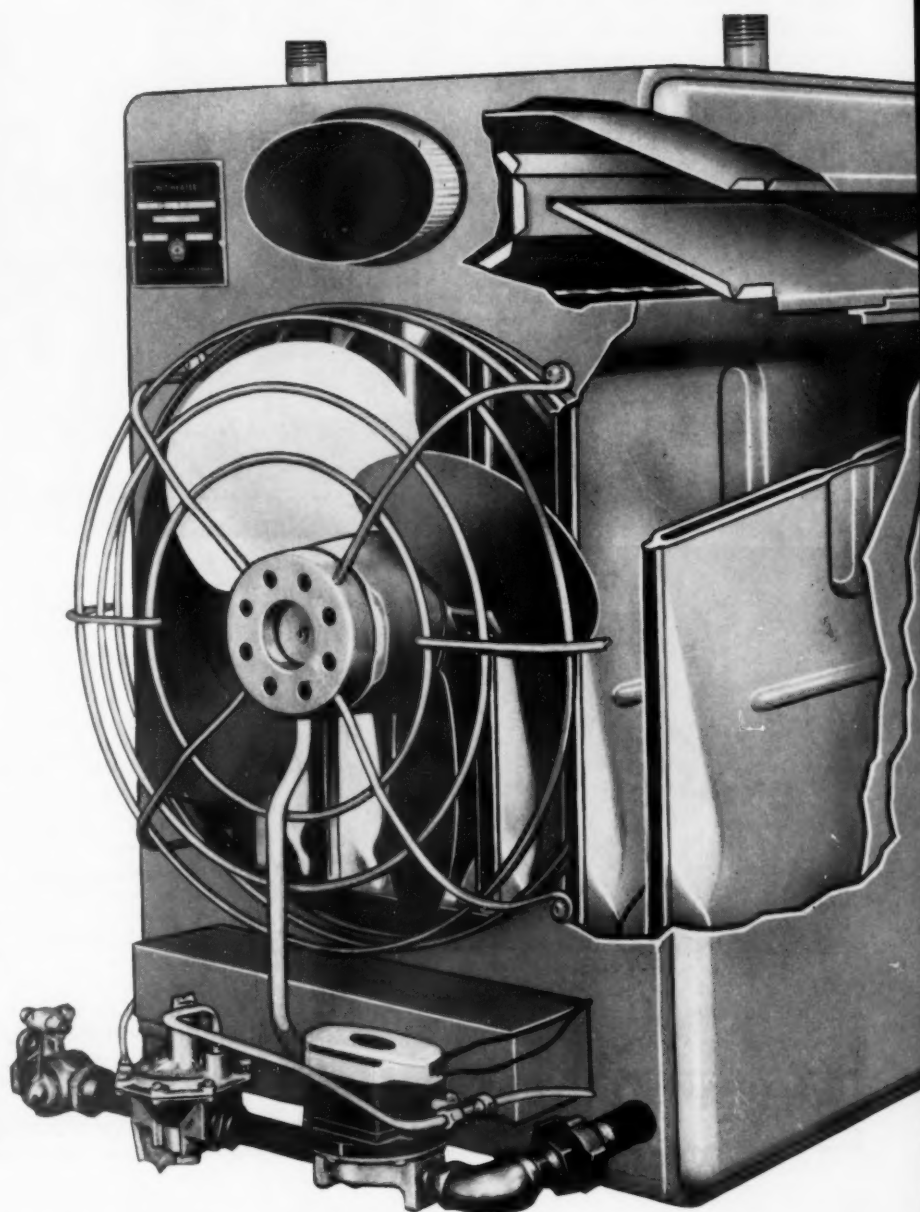
Exceptional service record—less than 1/2 of 1% returns.

A.G.A. approved for all gases; 8 sizes, 50,000 to 225,000 Btu.—Immediate delivery from full local stocks carried by Bryant factory branches and distributors.

BRYANT MANUFACTURING CO.
Indianapolis, Indiana

bryant

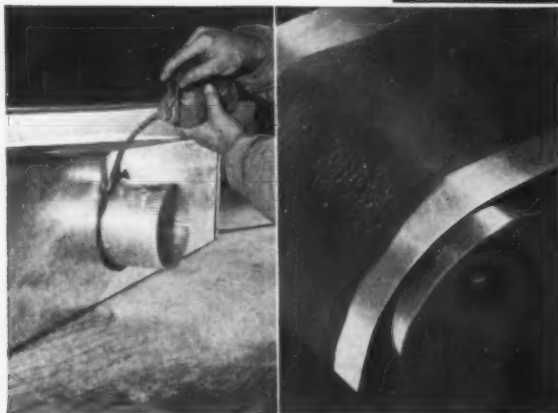
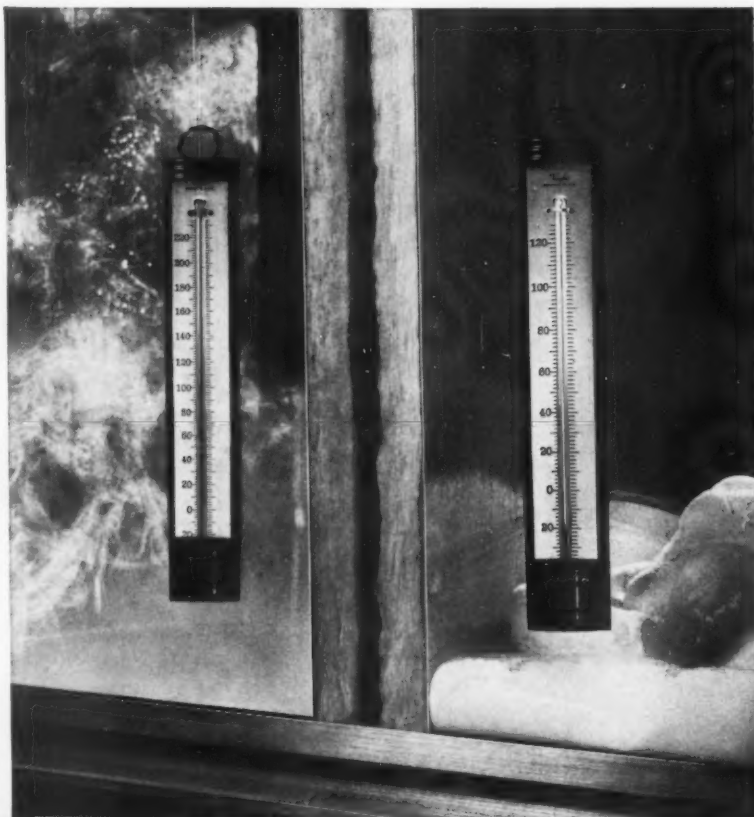
Unit Heaters



3M Brand Adhesives and Sealers . . . Insulation Bonds and Duct Seals that HOLD

Even in temperature extremes . . . Insulation Adhesive 1128 **HOLDS**. Heat as high as 250° F. and temperatures as low as -20° F. can't weaken the bond. It holds fibrous glass insulation firmly on metal ducts and buildings. Highly resistant to moisture, 1128 also helps keep insulation dry when used to bond foil to foil where insulation facings lap.

Insulation Adhesive 1128 can be brushed or sprayed to provide both instant grip and long open time needed for positioning the insulation.



Even in high velocity systems . . . Duct Sealer 800 **HOLDS**. This sealer is so tough and flexible that a dry film $\frac{1}{8}$ " thick will withstand bending over a six-inch mandrel at -65° F. Resistant to vibration, it flexes with duct expansion and contraction, won't flow out of seams under pressure even at 180° F. Furthermore, the airtight seal resists water, oil and ageing. Duct Sealer 800 goes on with brush, flow gun or putty knife and sets up so firmly at joints that duct work actually *gains* structural strength.

For more information, see Sweet's Catalog. For free literature about the complete family of 3M Adhesives, Coatings and Sealers for the building industry, see your 3M distributor or write on your company letterhead to: AC&S Division, Dept. SBJ-90, 900 Bush Avenue, St. Paul 6, Minnesota.

ADHESIVES, COATINGS AND SEALERS DIVISION

MINNESOTA MINING AND MANUFACTURING COMPANY

. . . WHERE RESEARCH IS THE KEY TO TOMORROW



"We're Closing 7 out of 10 Premium Sales..."

reports
MR. RON ECKLES, Sales Manager
C & H Home Service
Des Moines, Iowa

...with the

Permaglas[®] Magic-Heet STORY!



"As a Permaglas heating dealer, we're able to offer our customers a great big *plus* when it comes to comfort," says Ron Eckles, "but comfort can be a pretty hard thing to describe... much less prove. That's where our 'old reliable' *Magic-Heet demonstrator* takes over."

And how it takes over! Since taking on the Permaglas line and building their sales presentation around the Magic-Heet demonstrator, Ron Eckles and his crew have been signing up 7 out of every 10 prospects. Even last January (normally a slow month), C & H sold 18 Permaglas installations... every one a replacement and every one at full profit. "About the only thing our Magic-Heet demonstrator *won't* do," declares Ron Eckles, "is sign the order."

Magic-Heet, of course, is A. O. Smith's exclusive method of assuring uniform indoor temperature and near-continuous air circulation by actually "tuning" the flame higher or lower in response to constantly changing heat losses. As an important consumer benefit, Magic-Heet puts Permaglas winter air conditioners in a class by themselves. As a valuable selling feature that can be easily and dramatically demonstrated, it's unbeatable.

You, too, can turn lookers into buyers... convert price-shoppers into quality-conscious customers... when you make Permaglas your profit line for the '60s. See your nearest Permaglas Distributor or return the attached coupon without delay.

This impressive device, available to all Permaglas warm air heating dealers, enables Ron Eckles to simulate the actual operation of a Permaglas winter air conditioner with Magic-Heet. The gas flame is automatically lowered as the heat-sensing element is warmed in Mr. Eckles' hand... rises again as the bulb is allowed to cool. The Magic-Heet demonstrator (equipped with a handy carrying case) is compact enough to be taken into customers' homes, and includes blower, thermostat, controls and other operative components.

Permaglas gas-fired winter air conditioners are available in a full range of sizes and styles... Hi-Boy, Lo-Boy and Down-Flow. Magic-Heet is optional with all models... for use with all gases, including LP.

Through research... a better way

A.O. Smith

PERMAGLAS DIVISION
KANKAKEE, ILLINOIS • NEWARK, CALIFORNIA
A. O. Smith International S.A., Milwaukee 1, Wis.



A. O. SMITH CORPORATION
Permaglas Division, Dept. AA-960
Kankakee, Illinois

Gentlemen: Please send me full information on Permaglas gas-fired winter air conditioners with Magic-Heet.

Name.....

Company.....

Type of Operation: ☐ Heating Contractor ☐ Heating Wholesaler
☐ LP Gas Dealer ☐ Other (specify).....

Address.....

City.....Zone.....State.....

makers of famous **Permaglas** glass-lined water heaters, warm air and hydronic heating equipment

WITH THE ASSOCIATIONS

(Continued from page 96)

'Get to Know Your Banker,' Advises Indiana Speaker



KEEPING THE NORTHERN INDIANA district meeting on schedule are (l to r) Ben Flock, state president; Jerry Clusserath, Lake County president; and Ralph Potesta, secretary, Lake County association

EAST CHICAGO, IND. — "How to Make More Money" was the theme of an address by Ray Daley, president, Gary Trust and Savings Bank, to those attending the northern Indiana district meeting of the Sheet Metal and Warm Air Heating Contractors' Association of Indiana. Mr. Daley suggested that dealer-contractors get to know their banker better as the first step to-

ward making more money. "Invite him to visit your office and shop, examine your trucks and other facilities and review your method of keeping books," he said. "You'd be surprised at the understanding this will develop when you need to borrow money to see you through a period of cash shortage."

Many dealer-contractors are in

(Continued on page 104)



SOCIAL HOUR provided Robert Jacobi (second from left) with opportunity to relate Indianapolis association's progress to Calvin Ulerly (left), John Kuharic and J. R. Walker

Coordinating Committee Appoints Secretary

CHICAGO — Henry J. Couch has been appointed executive secretary of the Coordinating Committee of Mechanical Specialty Contractors Associations of Chicago. Mr. Couch is also executive secretary of the Ventilating and Air Conditioning Contractors Association of Chicago.

The Coordinating Committee represents the Electrical Contractors Association of Chicago, Mechanical Contractors Chicago Association, Plumbing Contractors Association of Chicago, and the Ventilating and Air Conditioning Contractors Association of Chicago. It was organized to study problems common to all four groups, and, wherever possible, to propose and effect solutions.

An example of the Coordinating Committee's activities is reflected in the brochure which they have recently published entitled "The Chicago Plan for Separate Mechanical Contracting Bids."

Headquarters of the committee is at 228 N. LaSalle St., Chicago.

New York State Names Committees

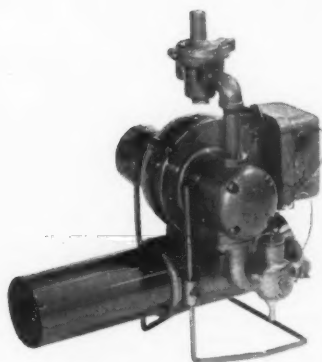
BUFFALO — George Ballard Jr. was recently appointed chairman of the membership committee of the New York State Sheet Metal, Roofing & Air Conditioning Contractors' Association. Assisting him are Charles Buri, Nicholas Venditti and Sol Sprinchorn.

Other committee members who have been appointed by William R. Nolder, president of the association, to serve until new committee members are appointed in 1961 are William Schmitt Jr., who was named chairman of the safety com-

(Continued on page 104)



FAMOUS MICHIGAN AVENUE BRIDGE TOWERS HEATED BY
LO-BLAST *ECONOMITE*
POWER GAS CONVERSION BURNERS



ECONOMITE POWER GAS BURNER

The Economite is made in capacities from 75,000 to 700,000 BTU/hr. input. Standard Lo-BLAST burners are available in capacities from 100,000 to 20,000,000 BTU/hr. input.

The north and south control towers of Michigan Avenue Bridge, at the foot of Chicago's "Magnificent Mile," are now heated dependably, economically by Lo-BLAST Economite Power Gas Conversion Burners rated respectively at 300,000 and 700,000 BTU/hr. This is just one of several Lo-BLAST conversion jobs installed in Chicago bridge towers.

Lo-BLAST Power Gas Burners save money because they eliminate the fuel waste caused by uncontrolled draft. When a *power* type burner shuts off, there is no rush of draft air to carry heat up the chimney, a condition which causes serious fuel waste.

The Lo-BLAST Burner does not depend upon natural draft, but upon air supplied by a small *quiet* blower. It provides both primary and secondary combustion air *only when the burner is on*. When the burner shuts off, the flow of air shuts off. The heating plant thus retains much of its heat between operations.

Lo-BLAST Burners eliminate the need for high chimneys—"inshot" design and complete factory assembly reduce installation and maintenance costs. Each unit is factory tested on gas before shipment.

Whatever you heat, you can do it for less with Lo-BLAST!

SEND TODAY FOR COMPLETE INFORMATION

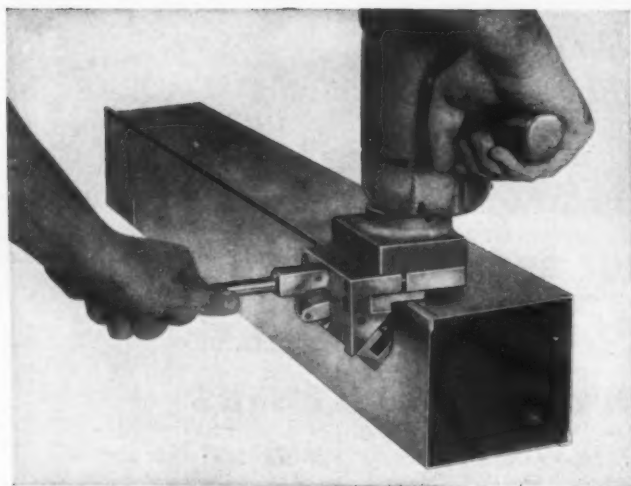
MID-CONTINENT METAL PRODUCTS COMPANY

1960 N. Clybourn Ave., Chicago 14, Ill.

ANOTHER 1ST FROM MILLERS FALLS

Shhh!

Swooshhh!



No. 518 LECTRO-LOK. Complete with slides that form $\frac{3}{8}$ " pocket. Slides for $\frac{3}{8}$ " and $\frac{1}{2}$ " pocket also available

New Lectro-Lok Pittsburgh Lock Roller

Rolls seams up to
30' per minute ...

Quietly!

- **WIDE CAPACITY**
18 to 28 gauge metal
- **LIGHT, PORTABLE**
Use it on the job
- **MAKES PERFECT SEAMS** — Smooth and tight
- **TAKES SHARP CURVES**
— down to 10" radius

Now you don't have to put up with the old, slow and noisy hammer method when fabricating sheet metal. Just position Lectro-Lok on open seam, bring down locking bar, press the trigger and tool 's-w-o-o-s-h-e-s' along metal seaming it automatically. No need to store and truck bulky ducts, either. With Lectro-Lok you can fabricate the metal to fit the job . . . right on the job! Powerful 5 amp. ball bearing motor insures fast, trouble-free performance even on long runs of heavyweight sheets. For better seams faster . . . cheaper—put new Lectro-Lok to work on your next job.

Write for full information
MILLERS FALLS COMPANY
Dept. AA-2, Greenfield, Mass.

**MILLERS FALLS
TOOLS**

SINCE
1868

HAND TOOLS

PRECISION TOOLS

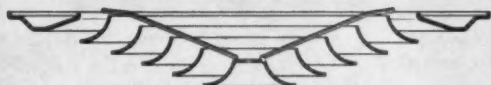
METAL CUTTING SAWS

ELECTRIC TOOLS



ARE YOU OVERLOOKING A GOOD BET?

**No. 1500 ROUND and No. 2500 SQUARE
U.S. CEILING DIFFUSERS ARE SUPERIOR
VOLUME PRODUCTION—PERFECT DESIGNING—LOW COMPETITIVE PRICE**



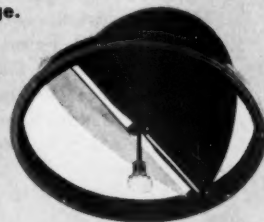
**CROSS-SECTION No. 1500
U. S. ROUND STEP-DOWN CEILING DIFFUSER**

U.S. No. 1500 ROUND CEILING DIFFUSER

The MOST VERSATILE—LARGEST FREE-AREA. Made to Sell Higher—But Sold at Low Prices. WIDE, DEEP, OUTER ANTI-SMUDGE RING Protects Ceilings. All Rings from Outer Ring to CENTER CONE describe perfect PARALLEL CURVE of AIR FLOW—RESULT: PERFECT AIR DIFFUSION.

FINISH—ART BUFF (prime coat). EQUIPPED with RUBBER SEALING GASKETS—Properly Attached to the Rim of ANTI-SMUDGE RING which Creates a POSITIVE SEAL against Ceiling Streakage.

Now the No. 1800 and No. 1801 ROUND BI-VALVE CEILING DAMPER—REMOVABLE KNOB-OPERATOR. A REAL FEATURE for System Balancing and Volume control at the DIFFUSER.

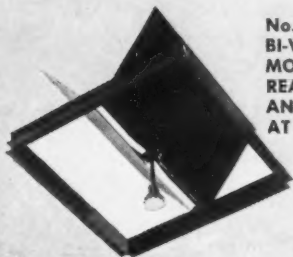


U.S. No. 2500 SQUARE CEILING DIFFUSER

Note: the WIDE, DEEP, OUTER ANTI-SMUDGE SECTION. This Protects the Ceilings against Soilage. The Air Stream is Diverted sufficiently Downward to Clear the Ceiling and yet Create PERFECT DIFFUSION. STANDARD FINISH—ART BUFF (prime coat). All No. 2500 CEILING DIFFUSERS are Equipped with the Finest Rubber Sealing Gaskets Properly attached to the Outer Rim of ANTI-SMUDGE SECTION which creates a POSITIVE SEAL against CEILING STREAKAGE.



**CROSS SECTION No. 2500
U. S. SQUARE STEP-DOWN CEILING DIFFUSER**



No. 2800 and No. 2801 SQUARE BI-VALVE CEILING DAMPER. REMOVABLE KNOB-OPERATOR. A REAL FEATURE FOR SYSTEM BALANCING and VOLUME CONTROL AT THE DIFFUSER.

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NEW
"A"**

CATALOG



Write Today!



UNITED STATES REGISTER COMPANY

BATTLE CREEK, MICHIGAN
MINNEAPOLIS • KANSAS CITY • ALBANY

WITH THE ASSOCIATIONS

(Continued from page 100)

Begin Work on Industry Standard For Sheet Metal Ducts, Fittings



INITIAL STEPS to be considered in preparing proposed industry standard were outlined at Islington meeting. From left (seated) are: H. C. McKenzie, Leigh Metal Products, Ltd.; G. Fast, Peninsula Fittings, Ltd.; P. J. Neustadter, Peninsula Fittings Ltd.; L. E. Arseneault, Chauffage Delux Heating Corp.; I. Kerzner, Ontario Heating & Sheet Metal Ltd.; T. A. Clark, N.W.A. general manager; J. Talarico, Talarico Ltd.; J. T. Lawson, N.W.A. administration manager; V. Sornin, Constant Air Flo Equipment Reg'd.; Wm. Simon, Continue-Flo Heating Products Ltd.; D. Lacroix, Thos. K. Webster Ltd.; and S. Friendly, Sol Friendly Metal Works Ltd. Standing are M. Friendly, Mainline Heating Supplies Ltd. (left), and G. Pellman, Dundas Sheet Metal Wear Ltd.

ISLINGTON, ONT. — Development of an industry standard for sheet metal ducts and fittings was the subject under discussion at a recent meeting held at the headquarters office of the National Warm Air Heating and Air Conditioning Association of Canada. In attendance were 12 representatives of companies engaged in the manufacture of these products. As a result of the meeting, a technical subcommittee will be appointed which will prepare a draft of the proposed recommended industry standard. When the proposed standard has been accepted as recommended good practice by the industry, it will be published and made available by the association.

There are 11 centers in Canada where local chapters of NWAHA-CA have been organized: Vancouver, Calgary, Edmonton, Saskatoon, Regina, Sarnia, Windsor, Hamilton, Toronto, Ottawa and

Montreal. The chapters are now integrated on a national scale with the association through the National Chapter Council. Each of

(Continued on page 108)

Committees Appointed By New York State

(Continued from page 100)

mittee, and Richard Horst, who will serve as co-chairman. Irving Spalty was appointed chairman of the budget committee and Richard Millard co-chairman. Heading the labor committee is Donald Argy, who will be assisted by Peter Sturr, Richard Millard, Sol Sprinchorn, Grant Sullivan and Frank Cashier.

Frank Schneider was named chairman of the separation of contract committee. Percy Sullivan, Peter Sturr and George Ballard Jr. will serve on Mr. Schneider's committee.

Banker Addresses Indiana Association

(Continued from page 100)

the banking business without realizing it, he said, because they extend credit too freely to those whom banks would turn down. Also, most heating and air conditioning firms are too easygoing about their collections. There are far too many customers who are in arrears more than 60 days. Special efforts should be made to collect money due beyond this period as it will provide cash that can be used to pay bills while discounts are in effect. If this is done, there is a twofold advantage: 1) the ratios on the balance sheet are more favorable, and 2) more money is made.

"If you're going to carry people on your Accounts Receivable ledger, be sure to add the cost of the money used. It's only right that people pay interest on the money they use. Besides, if they use your cash, you'll have to borrow money (and pay interest) to meet salaries due, taxes and other non-deferrable bills," he said.

Host at the district meeting was the Lake County Sheet Metal and Warm Air Heating Contractors' Association. Other business covered during the day-long meeting included preliminary planning for the 1961 Purdue Short Course and the 1961 annual convention. A review of current committee work was presented and progress reports were given.

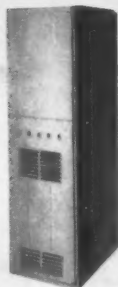
Roof Drainage Group Gets New Members

Chicago — Two new members — Berger Bros. Co., Philadelphia; and Lamb & Ritchie, Cambridge, Mass. — have joined the Roof Drainage Manufacturers Institute.

(More association news on page 108)



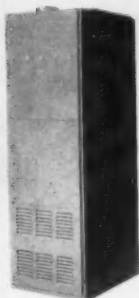
Gas-fired upflow.
Sizes:
77000-154000 Btu.



Gas-fired downflow. Sizes:
77000-154000 Btu.



Oil-fired upflow.
Sizes:
84000-134000 Btu.



Oil-fired downflow. Sizes:
84000-134000 Btu.



Oil or gas-fired horizontal.
Sizes: Oil, 84000-140000 Btu;
Gas, 80000-140000 Btu.

Now! A complete Trane furnace line...with matched cooling units for any job!

Build your future in the residential-commercial field by becoming a Trane Authorized Source!

Now TRANE—the people who have air conditioned *everything* from skyscrapers to jet planes to subway trains—brings you a complete line of heating and air conditioning equipment for homes and small commercial jobs. Here are the types and sizes of furnaces you want and matched cooling units—a quality line at competitive prices.

As a Trane Authorized Source, you enjoy these advantages:

- Association with a leading manufacturer, known nationally for its excellence of engineering and research.
- Complete line of competitively priced heating-cooling equipment for residential and commercial applications.
- Assurance of product dependability, simplified installation, trouble-free operation.
- On-the-spot assistance; 100 sales offices, plus a nationwide network of warehouses for quick delivery.
- National and local advertising support; promotional material and point-of-sale aids.

Most important, as a TRANE Authorized Source, you will be in a position to take full advantage of the rapidly growing home air conditioning market. That's because TRANE is a recognized leader in air conditioning . . . specializing exclusively in the field of heating-cooling-ventilating. And, you will be confident that TRANE will provide you with the newest developments in air conditioning equipment.

When you plan your future in the residential and commercial heating-air conditioning field, talk to TRANE! For complete information, just call your nearby TRANE Sales Office. Or write TRANE, La Crosse, Wisconsin.

For any air condition, turn to

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MANUFACTURING ENGINEERS OF AIR CONDITIONING,
HEATING, VENTILATING AND HEAT TRANSFER EQUIPMENT

THE TRANE COMPANY, LA CROSSE, WIS. • SCRANTON MFG. DIV., SCRANTON, PA. • CLARKSVILLE MFG. DIV., CLARKSVILLE, TENN. • TRANE COMPANY OF CANADA, LIMITED, TORONTO • 100 U.S. AND 19 CANADIAN OFFICES

Refrigeration unit for TRANE Climate Changers is air cooled. Sizes: 2, 3, 4, 5 and 7½ tons.

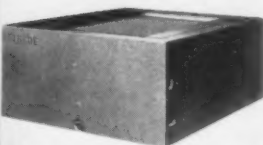
New TRANE Heat Pump. Air-to-air type, 2, 3, 5, 7½ hp; water-to-air, 3, 5, 7½, 10 and 15-ton sizes.



Bonnet cooling coil unit.
2, 3, 5-ton sizes.



Duct cooling coil unit. 2, 3, 5, 7½-ton sizes.



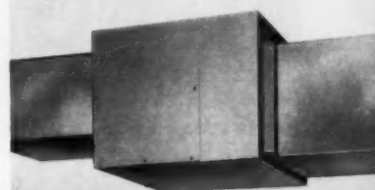
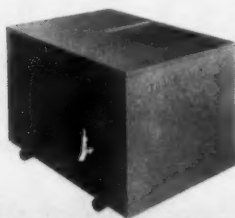
Downflow cooling coil unit. 2, 3, 5-ton sizes.



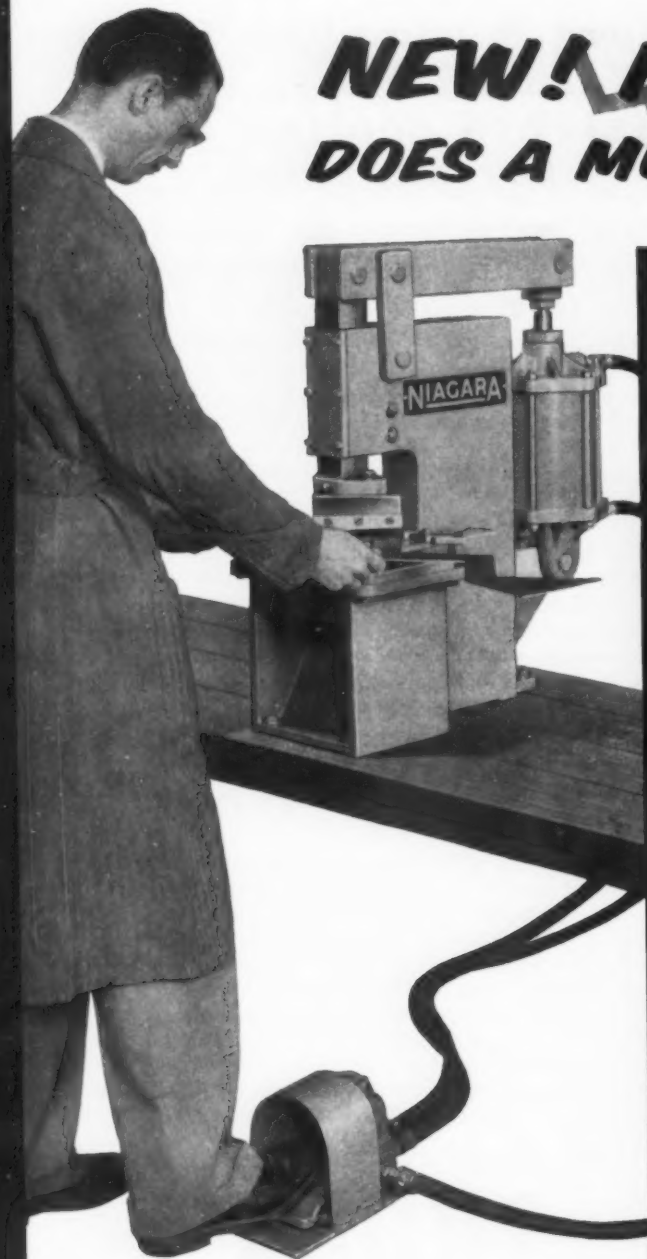
Fan-coil unit. 2, 3, 5 and 7-ton sizes.



Self-Contained Climate Changer.
3, 5, 7½, 10 and 15-ton units.
Also commercial units 20, 25, 30, 40 and 50-ton sizes.



**NEW! FAST-ACTING!
DOES A MULTITUDE OF JOBS!**



DUPLEX SETUPS, TOO!

Available also is a two-machine arrangement (for edge or corner trimming) with a single foot valve (for simultaneous operation of both machines), a floor stand and feed table.

NIAGARA

America's Most Complete Line of Presses, Shears, Press Brakes, Other Machines and Tools for Plate and Sheet Metal Work

**AIR POWER NOTCHING
& PUNCHING MACHINE**

Air powered for speed and operating ease, this versatile, all-new machine is a production-booster from the word "Go". With a 6½-ton capacity and a 4¾-inch throat, it is available with notching or punching attachments or both.

A foot valve controls the action to free both hands for handling the material. The ram can be lowered gradually to locate work at prick-punched points and to facilitate die changing. Adjustable to an infinite variety of positions, a uniquely-designed gage also steps up productivity. An unusually large selection of punches and dies is available for simple or intricate holes, corner trimming, combination trimming and cutoff.

Featuring rugged, compact, all-steel construction, Niagara's No. 65-5 Notching and Punching Machine can be furnished for bench mounting or with a floor stand. Shop air pressure of 80 psi is all that's needed for A-1 performance. **LEARN MORE** about this multi-purpose machine and what it can do by writing for new, illustrated Bulletin 79 today.



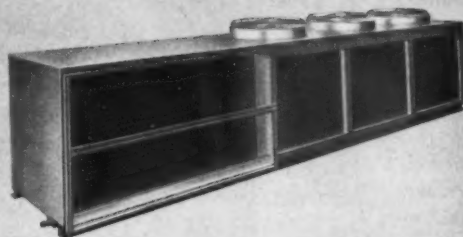
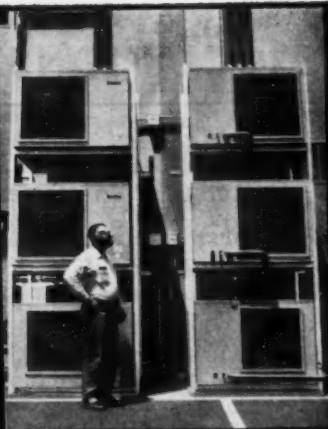
NIAGARA MACHINE & TOOL WORKS, BUFFALO 11, N. Y.

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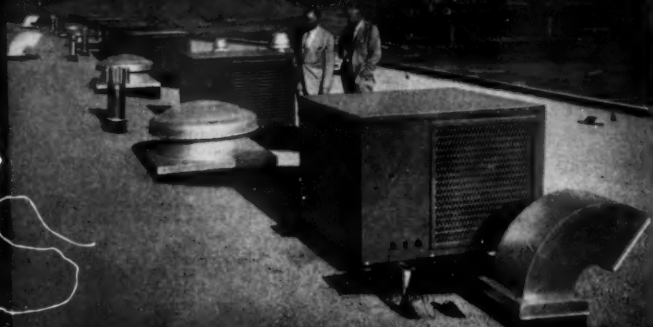
Distributors in principal U. S. cities and major foreign countries

**Think
Value**



**Know
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**Sell
Value**



*Fraser-Johnston air conditioners and heat pumps—remote and self-contained—are sized to handle light commercial jobs by using either single unit or zone application of smaller units. By using large coils and large air volumes, Fraser-Johnston units are unexcelled for cooling in the most demanding of the nation's climatic conditions.

Fraser-Johnston

1900-17th STREET, SAN FRANCISCO, CALIFORNIA
"OVER A QUARTER CENTURY OF LEADERSHIP"



Upflow Furnaces
65,000 to 250,000
BTU Hr. Input



Downflow Furnaces
65,000 to 250,000
BTU Hr. Input



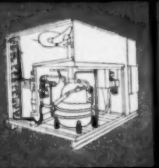
Horizontal Furnaces
70,000 to 150,000
BTU Hr. Input



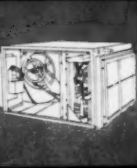
Matching Cooling
Coils for easy add on
All Furnaces



Air Cooled and
Water Cooled
Condensing Units



Heat Pumps & Air
Conditioning Units
self contained & remote



Air Handling Units

WITH THE ASSOCIATIONS

(Continued from page 104)

Pennsylvania Auxiliary Elects New Officers

ERIE, PA. — New officers have been elected by the salesman's auxiliary of the Sheet Metal, Air Conditioning and Roofing Contractors' Association of Pennsylvania. They are: president, E. K. Thompson, Thompson & Co., Oakmont; first vice president, Howard Wilhelm, McClure-Johnston Co., Pittsburgh; second vice president, Charles F. Bell, Follansbee Steel Corp., Philadelphia; third vice president, James W. Paddock, Famous Furnace Co., Steubenville, O.; secretary, Norman L. Horger, Famous Furnace Co., Steubenville; and treasurer, H. S. Criswell, McClure-Johnston Co., Pittsburgh.

Directors with terms ending in 1961 are: James T. Roberts, Decker-Reichert Steel Co., Erie; Chas. A. Fink, Lyon, Conklin & Co., Baltimore; and Grant F. Gillespie, Cincinnati Elbow Co., Cincinnati. Those with terms ending in 1962 are L. F. Demmler, Louis F. Demmler Co., Pittsburgh; Robert Spear, Myers Furnace Supply Co., Wilkesburg; and J. J. McGeady, Benjamin P. Obdyke, Inc., Philadelphia. Directors with terms expiring in 1963 are Thos. McCombs, Famous Furnace Co., Warren, O.; Steve C. Goodnough, Follansbee Steel Corp., Pittsburgh; and Ray Keefer, Gateway Steel Co., McKees Rocks.

Illinois Secretary Gets Merit Plaque

WAUKEGAN, ILL. — An "award of merit" plaque was recently presented to Martin P. Lauerman, a past president and now secretary of the Sheet Metal, Air Conditioning and Roofing Contractors Association of Illinois, in recognition of his many years of service.

'Clinic' Visits Long Island Homes

MINEOLA, N. Y. — Long Island homeowners are welcoming the free diagnostic and advisory service provided by the Climate Control Council's "clinic" for warm air heating systems, according to Joseph Frederick, president of Sheet Metal Workers Union Local #55 and a member of the council. Mr. Frederick said that residents of more than a dozen Nassau-Suffolk communities have already taken advantage of the service. The council invites inquiries from anyone having problems with warm air heating plants in residences or commercial buildings and sends out inspectors who investigate complaints, diagnose troubles and suggest corrective measures. The council is a joint labor-management project established to maintain and guarantee high standards of materials and workmanship.

Columbus Group Elects Swebston

COLUMBUS — At the annual meeting of the Heating, Air Conditioning and Sheet Metal Association of Columbus, Ohio, two new directors — Frank Alexander and Jim Favret — were elected to the board. The new board met following the annual meeting and elected Dwight Swebston president and Frank Alexander vice president.

Primary objective of his program, the new president said, is the strengthening of the association through promotion of cooperation and greater understanding among members, which will ultimately result in a general upgrading of standards in the industry. This, in turn, will warrant higher price levels and better profits for the dealer-contractor.

Associate Section Formed at Minneapolis

MINNEAPOLIS — Associate members of the Air Conditioning & Heating-Roofing & Sheet Metal Association of Minneapolis have formed a new section under the chairmanship of Noel Girard, Girard Steel Supply Co. At the initial meeting of the new section, the following were named to serve as a steering committee: Jim Duvolis, D.C. Sales Co., representing the domestic section; Ron Lunnis, Paper Calmenson & Co., manufacturing section; Bob Bennett, A. H. Bennett Co., roofing; and Bud Goldstein, Globe Plumbing & Heating, commercial.

The association's board of directors has invited Mr. Girard to sit in at board meetings, and it is their intention that the association bylaws be revised to give the associate section chairman voting power on the board. The board believes that the new section can be of considerable help in matters of program planning, industry promotion, etc.

Canadian Group Works On Industry Standard

(Continued from page 104)

the chapters has elected a contractor chapter member as its official delegate on the National Chapter Council.

The council plans to meet at least three times each year to discuss problems of interest to the warm air heating industry and to make recommendations which will be submitted to the association's board of directors for consideration. In general, the council deals with such matters as membership regulations, code requirements, manual revisions, educational and promotional programs.

(Coming Events on page 112)

"WE JUST COULDN'T DO THE JOB WITHOUT WISS SNIPS!"

says Carl Thaw, Secretary-Treasurer
Dunhill Food Equipment Corp., Brooklyn 5, N. Y.



THE BASIC ESSENTIALS "This is what we started with, Wiss Bulldog and Aviation snips," says Carl Thaw. "We wanted to make the best equipment possible so we chose the best tools we could get...Wiss."



WISS

... Made by Metal Craftsmen for use by Metal Craftsmen

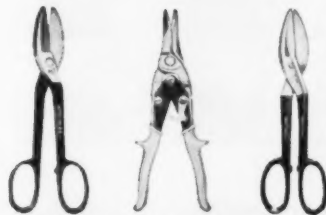
J. WISS & SONS CO., NEWARK 7, N. J.

World's Largest Manufacturer of Shears, Scissors, Pinking Shears, Skalloping Shears, Metal Cutting Snips and Garden Shears

"We started out in 1946 with \$1000 capital, a small shop, a few tools. Among those prized tools were several pairs of Wiss snips. Today, Dunhill is one of the major manufacturers of soda fountains and food equipment. And we don't mind giving a part of the credit for our rapid success to Wiss snips. You'll find them on every bench in the shop.

"Although we have a lot of machinery, when you manufacture food equipment and do a lot of custom jobs there's plenty of work for hand tools. There are difficult cuts to be made and often the space you have is cramped. Sure-cutting, easy-handling snips are a must. Since practically all the metal cut with snips is heavy gauge stainless steel, you've got to have tools that can take it and still stay sharp. Wiss snips fill the bill better than any I know of."

Take a tip from Carl Thaw, a man who knows from personal experience. Next time you order, specify Wiss snips. Nothing cuts easier...stays sharper...lasts longer.

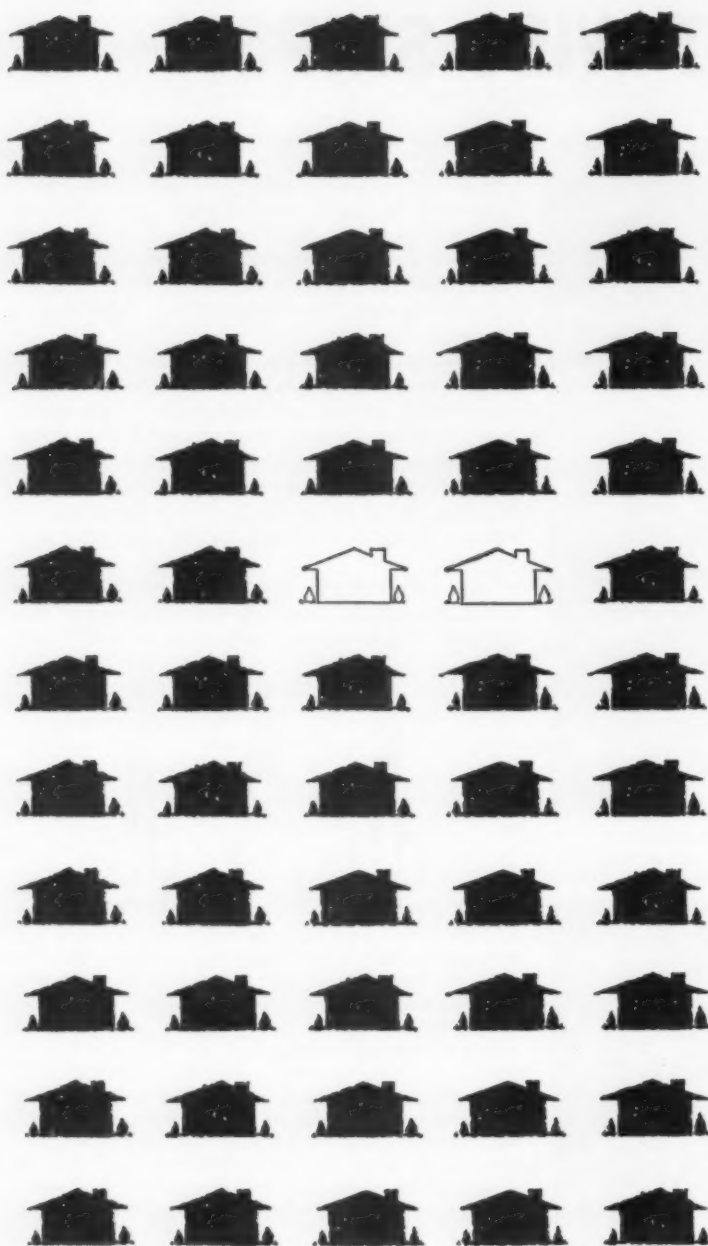


Inlaid ■ Metal-Master ■ Solid-Steel

WISS INLAID BLADE SNIPS cut with lasting sharpness, tremendous power. High carbon crucible steel blades, welded to hot drop-forged frames. Complete range of sizes, 11½" to 17". Models: straight cutting, circular cutting, curved blades, and bulldog notching.

WISS METAL-MASTER AVIATION SNIPS, with amazing compound action, cut with half the effort required by conventional snips! They are preferred by many for their compact size, and ability to make intricate cuts. Left, right and straight cutting models, only 9¾" long, cut 18 gauge metal. Bulldog combination model, 9¼" long, cuts 16 gauge stainless steel.

WISS SOLID STEEL SNIPS, made from a special grade of solid tool steel, are available in straight cutting, circular cutting and bulldog models from 7" to 16". Priced slightly lower than inlaid snips.



You can replace 98% of the oil burner filters in your territory with just four **PUROLATOR** elements

With a small inventory of just *four* Purolator filter elements, you're set to handle the replacement needs of 98% of the oil burner filters on the market—old ones, new ones, and most of the odd sizes.

Once you've installed a Purolator you're set for a long time. Purolator elements filter finer (down to 0.0005") and longer (they last a year or more without servicing) than any other filter element on the market. With Purolator, you'll be spared the usual emergency calls to replace nozzles that have failed because of abrasive dirt. And a year or more from now, at replacement time, you'll appreciate the way the Purolator element pops out on a spring to make replacement neat and easy.

Purolator has a cross-reference chart that shows you which Purolator elements will fit which brands of oil burner filters. You can get a free copy of the chart by filling in the coupon and sending it to Purolator Products, Inc., Rahway, New Jersey.

Purolator Products, Inc., Dept. 2578
Rahway, New Jersey

Please send me the Purolator Cross Reference Chart showing the correct Purolator filter element for eight major brands of oil burner filters.

Name

Company

Address

State City Zone

Filtration For Every Known Fluid

PUROLATOR
PRODUCTS, INC.

RAHWAY, NEW JERSEY AND TORONTO, ONTARIO, CANADA



***Comfortable living for them,
MORE MONEY for YOU***

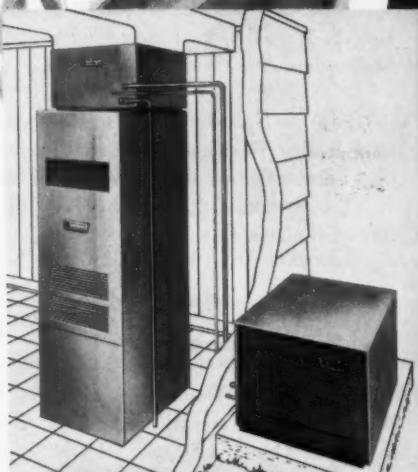
Install low-cost GM DELCO heating-cooling

There are units to fit *any* heating system, new or old.

- Cut costs—use same ducts for heating *and* cooling.
- Save space—choice of cooling coil sizes to stack on any furnace . . . up-flow, down-flow or horizontal.
- Remote condenser is weatherproofed for exterior installation.
- Complete blower-and-coil packages for hot water and steam systems.
- Quality assurance . . . national-brand acceptance . . . backed by General Motors reputation.

Find out more about how you can profit with easy, low-cost Delco installations.

Get the facts on the complete Delco line of Air Conditioning . . . and Heating. Write, wire or phone for full details.



DELCO APPLIANCE DIVISION
GENERAL MOTORS CORPORATION
Rochester 1, N. Y.

WITH THE ASSOCIATIONS

(Continued from page 108)

Coming Events

October

Oct. 10-12 — American Gas Association, annual convention. Atlantic City, N. J. C. S. Stackpole, managing director, 420 Lexington Ave., New York 17.

November

Nov. 14-15 — National Warm Air Heating and Air Conditioning Association, annual convention. Statler-Hilton Hotel, Cleveland. J. M. Martin, managing director, 640 Engineers Bldg., Cleveland 14.

Nov. 16-17 — National Warm Air Heating and Air Conditioning Association, Board of Trustee meetings. Statler-Hilton Hotel, Cleveland. J. M. Martin, managing director, 640 Engineers Bldg., Cleveland 14.

Nov. 18-22 — Air-Conditioning and Refrigeration Institute, annual meeting. Hollywood Beach Hotel, Hollywood Beach, Fla. Geo. S. Jones Jr., managing director, 1346 Connecticut Ave., Washington 6, D. C.

Nov. 27-30 — Northamerican Heating & Air-conditioning Wholesalers, annual convention, Statler-Hilton Hotel, Detroit. Wilbur R. Bull, managing director, 1200 W. Fifth Ave., Columbus, O.

1961

January

Jan. 29-Feb. 2 — National Association of Home Builders, annual convention. New Exposition Center, Chicago. John M. Dickerman, executive director, 1625 L St., N. W., Washington 6, D. C.

February

Feb. 2-3 — Sheet Metal and Warm Air Heating Contractors' Association of Indiana, annual convention. Hotel Severin, Indianapolis, Ind. Ed. Lewis, executive secretary, 1414 E. Southport Rd., Indianapolis.

Feb. 5-8 — New York State Sheet Metal, Roofing and Air Conditioning Contractors' Association, annual convention. Hotel Syracuse, Syracuse, N.Y. Clarence J. Meyer, executive secretary, 569 Genesee St., Buffalo.

Feb. 13-16 — American Society of Heating, Refrigerating and Air-Conditioning Engineers, Inc., semi-annual meeting, Conrad Hilton Hotel, Chicago. R. C. Cross, executive secretary, 234 Fifth Ave., New York.

Feb. 13-16 — International Heating & Air-Conditioning Exposition. International Amphitheatre, Chicago. E. K. Stevens, exposition manager, International Exposition Co., 480 Lexington Ave., New York 17.

March

Mar. 6-8 — Sheet Metal Contractors' Association of Wisconsin, annual convention. Hotel Schroeder, Milwaukee. Robert S. Schmieder, executive secretary, 8320 W. Bluemound Rd., Milwaukee.

Mar. 23-25 — Southeast Trade Exposition sponsored by Sheet Metal, Roofing, Heating, Air Conditioning Contractors' Association of Georgia. B. L. Noblitt, executive secretary, 208 Red Rock Bldg., Atlanta 3.

April

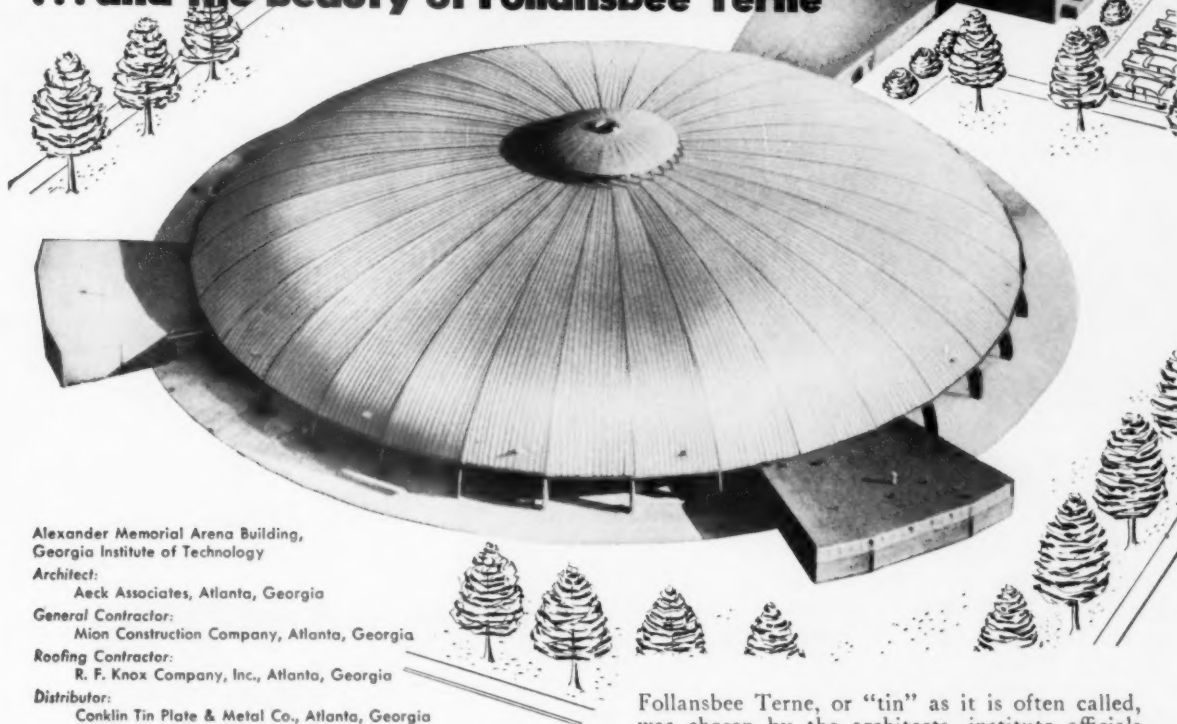
Apr. 6-7 — Sheet Metal, Air Conditioning and Roofing Contractors Association of Illinois, annual convention. Pere Marquette Hotel, Peoria, Ill. M. P. Lauerman, secretary, 237 E. Tompkin St., Galesburg, Ill.

Apr. 13-15 — Gas Appliance Manufacturers' Association, annual convention. Boca Raton Club and Hotel, Boca Raton, Fla. Gas Appliance Manufacturers' Association, 60 E. 42nd St., New York 17.

Apr. 24-26 — Sheet Metal and Air Conditioning Contractors' National Association, annual convention. Ambassador Hotel, Los Angeles. J. D. Wilder, executive secretary, 107 Center St., Elgin, Ill.

A ROOF 270 FEET IN DIAMETER!

...and the beauty of Follansbee Terne



Alexander Memorial Arena Building,
Georgia Institute of Technology

Architect:

Aeck Associates, Atlanta, Georgia

General Contractor:

Mion Construction Company, Atlanta, Georgia

Roofing Contractor:

R. F. Knox Company, Inc., Atlanta, Georgia

Distributor:

Conklin Tin Plate & Metal Co., Atlanta, Georgia

One of the most striking metal-roofed structures to be built in recent times is the new Alexander Memorial Arena of the Georgia Institute of Technology.

The entire seating area for the 7,000 seat arena is underground with only the huge, inverted saucer-like roof projecting above the surrounding ground level.

Measuring 270 feet in diameter, the roof contains 725 squares of Follansbee Terne arranged in batten and standing seams.

Follansbee Terne, or "tin" as it is often called, was chosen by the architects, institute officials and contractors because it would produce a roof which would harmonize with the surrounding campus and give a long service-free life.

Being chosen for its beauty and promise of long life is nothing new to Follansbee Terne. Buildings of all types and sizes in all parts of the country with roofs of Terne have given fine service for several lifetimes because they are made of durable, fireproof metal.

The next time you are called in on a metal roofing job, suggest the use of Follansbee Terne. It's wonderful to work with and will provide a beautiful, lasting roof for the building owner.



Follansbee Terne is carried in stock by
Leading Sheet Metal Distributors Everywhere

FOLLANSBEE

STEEL CORPORATION

FOLLANSBEE, WEST VIRGINIA

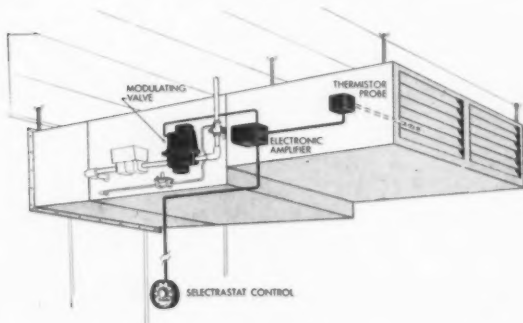
Sales Offices in Principal Cities

EQUIPMENT DEVELOPMENTS

The latest information on manufacturers' developments is presented here with brief summaries of the applications of these products. For additional product information which is available see this month's New Literature department

Air Modulation Control

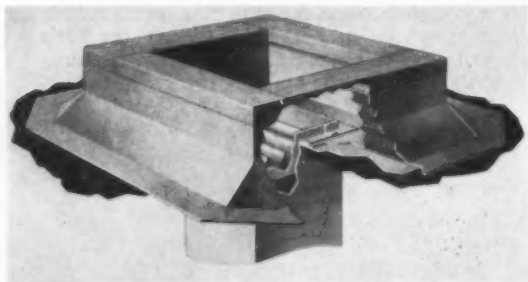
"MAXITROL" electronic modulation system control for gas-fired duct heaters used in make-up air systems converts the conventional furnace into a variable input burner so that varying outdoor-indoor temperature differentials are met by a continuous flow of varying temperature air, according to the manufacturer. The



control features a small probe which is inserted in the warm air duct between the heat exchanger and the discharge head. The temperature setting control may be located at any remote spot up to several hundred feet away from the heater. Modulation is infinitely variable from full to one-third fire. Capacity rating of the modulation system is 310,000 Btuh—Maxitrol Co., 12200 Beech Rd., Detroit 39.

Prefabricated Roof Ventilator Curb

"INSTA-CURB" is constructed of heavy gage painted steel. All joints are welded and the base and corner cants are said by the manufacturer to reduce possible



leak points. The unit features full fiberglass insulation between double shell construction and wood top curb for easy ventilator mounting. Each unit is assembled before shipment. It is available to fit roof openings

from 10 × 10 in. to 36 × 36 in., with outside top curb dimensions of 20 × 20 in. to 52 × 52 in.—Swartwout Fabricators, Inc., 100 East North St., Kokomo, Ind.

LP-Gas Welding Outfit

"BIG 98LP" cutting, heating, welding, brazing outfit designed for use with LP-gas. It contains a braze-welding tip which does fusion welding of metals up to 14 gage, according to the company. The cutting tip includes cuts up to 4 in. metal. The outfit also includes a midrange soldering tip and adapter for use with LP-gas and air—Smith Welding Equipment Corp., 2633 Fourth St., S.E., Minneapolis 14, Minn.

Electronic Air Cleaner

MODEL TPF panel type electronic air cleaner is two inches thick in the direction of air flow. It is offered in a variety of sizes to accommodate most furnaces



and central air conditioning systems, according to the manufacturer. Capacity ranges from 640 to 1000 cfm per panel. In installations requiring two panel filters, both can be activated by the one power pack—Trion, Inc., 1000 Island Ave., McKees Rocks, Pa.

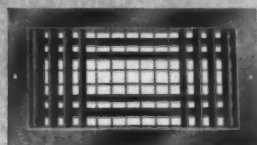
Color Coating Stainless Steel

"COLOROLD" consists of applying uniform color finishes to regularly produced stainless steel sheet and strip. According to the manufacturer, ColorRold stain-

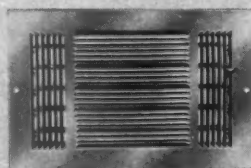
*You can predict performance
if they are...*

**Air
Mate**

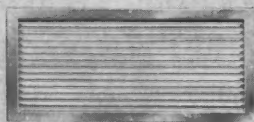
REGISTERS, GRILLES
DIFFUSERS



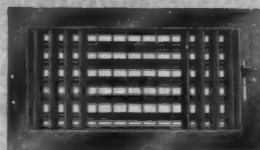
ADJUSTABLE
DEFLECTION GRILLES



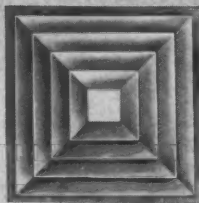
SIDEWALL OR
CEILING DIFFUSERS



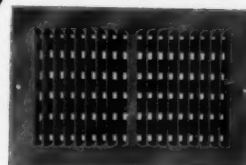
RETURN
AIR GRILLES



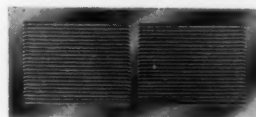
ADJUSTABLE
DEFLECTION REGISTERS



SQUARE
DIFFUSERS



MULTI-SHUTTER
WALL REGISTERS



RETURN
AIR GRILLES
FLEXIBLE FIN TYPE



ROUND
DIFFUSERS

When performance really counts, "Air Mate" engineered products, backed by engineering data, provide you the efficient answers to your heating and air conditioning problems.

A complete line of Registers, Grilles and Diffusers is available for every requirement.

✱ Write for free illustrated catalog with complete engineering section that is invaluable to help you to properly select, locate, and size return grilles and outlets for your installations.

DRY MANUFACTURING CO.
INCORPORATED

P. O. BOX 797 • WINTERS, TEXAS

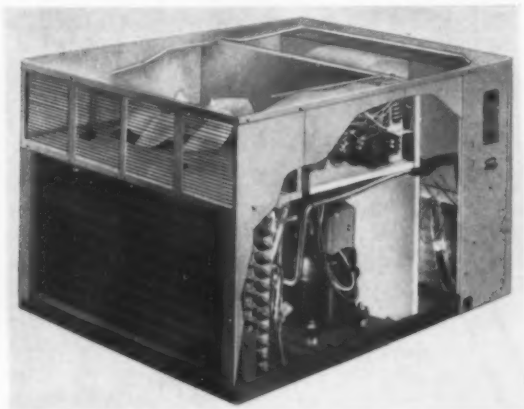
equipment developments

(Continued)

less provides good toughness, weathering and fabricating characteristics, and can be sheared, bent, formed and drawn to extreme degrees without damage to the color coating. At present the stainless is available in ten standard colors and white, and is in coil or sheet form up to 48 in. wide in all popular gages—*Product Development Dept., Washington Steel Corp., Woodland Ave., Washington, Pa.*

Hermetic Heat Pump

Two sizes of hermetic heat pumps have heating capacities of 22,200 and 38,000 Btuh, and cooling ratings of 23,000 and 35,000 Btuh, respectively. The manufacturer points to a special control feature involving a four-mercury bulb, and an automatic changeover heating-cooling thermostat. Three mercury bulbs are



activated by heat anticipation coils to control heating, cooling, and auxiliary electric heat cycles. The fourth bulb keeps the heat pump reversing valve in either heating or cooling position as long as that particular cycle is required. Both indoor and outdoor coils have 4-row seamless copper tubing. Air for both coils is pulled through the coil, turned 180 deg, and discharged in the opposite direction of entry—*Lennox Industries Inc., 200 S. 12th Ave., Marshalltown, Ia.*

Metalworking Machines

DESIGNED for medium and heavy sheet metal work, the line consists of six basic types of machines. Three models of ring and circle shears with capacities from 10 gage to $\frac{3}{8}$ in. mild steel for cutting circles 6 to 72 in. in diameter. Circle shears with capacities of $\frac{1}{8}$ through $\frac{1}{4}$ in. mild steel. Slitting shears for slitting sheets of any length into widths $\frac{5}{8}$ to 23 in. wide. Combination ring and circle shears and flanger cuts discs 8 to 58 in. in diameter starting at the edge of square

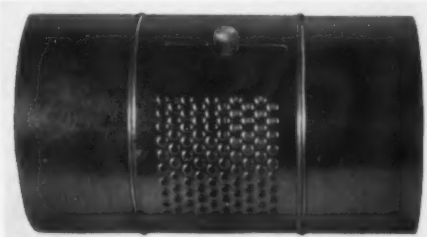
blanks and turns flanges up to $1\frac{1}{2}$ in. high. Combination circle shear and flanger is adaptable to both light and heavy work. Flanger for extra heavy work produces flanged heads 26 to 105 in. in diameter (inside



flanges) from $\frac{3}{8}$ in. mild steel plate. According to the manufacturer, cutters on all shears are precision ground, special grade, heat-treated alloy steel. Flanging rolls are case-hardened, high grade steel—*Niagara Machine & Tool Works, 683 Northland Ave., Buffalo 11, N.Y.*

Air Diffusing Device

"DUCT-D-FUSER" for use as a part of exposed duct installations has shaped nozzles formed in the wall in a planned pattern which provides complete selection of air volume, distribution and direction. Does not require special fittings or duct attachments, according



to the manufacturer. Other features include: permits full flow of main body of air; eliminates projections; and will operate in high, medium or low pressure systems without pressure valves or direction vanes—*Spiral Pipe Division, United Sheet Metal Co., Inc., Columbus, Ohio.*

Solid Vinyl Fans

TYPE BT solid vinyl, belt driven tubeaxial fans for use in highly corrosive air handling applications may be obtained in sizes from 16 to 36 in., and with air deliveries ranging up to 25,000 cfm. The entire fan

A BOOMING BUSINESS WHERE PROFITS CAN BE DOUBLE



... that's the "Better Air" Market for

Electro-Klean[®]

ELECTRONIC HOME AIR FILTER

Every reliable authority predicts the already fabulous public interest in "Better Air" will continue unabated. During 1950-59, that interest reflected itself in a *40% increase* in warm air furnace sales; a *31% increase* in central residential air conditioning sales; an increase of untold billions of dollars spent for air pollution control.

Even bigger boom in Electro-Klean Sales

The last four years of the same period saw an *increase of 500%* in sales of ELECTRO-KLEAN, the perfect "Better Air" companion-piece for forced air furnace and/or air conditioning systems. ELECTRO-KLEAN, in fact, offers decided opportunities for *double profit* in connection with the repair of older systems or the installation of new ones.

In performance, ELECTRO-KLEAN is outstanding... removing up to 90% of all airborne dirt and pollen from *all the air* inside a house! In price, ELECTRO-KLEAN retails for one-half of what do comparable units—requires no costly water or sewer connection, and does not necessitate special wiring circuits!

**Make 2 sales,
double your profit!**



Your opportunities for *double profit* with ELECTRO-KLEAN stem from the fact that it is quickly, easily installed in the return air duct of any forced air heating or cooling system. Acquainting a homeowner with the ELECTRO-KLEAN "Better Air" story, and then submitting an Alternate Proposal on every forced air system repair or installation job, will result in a sale of both ELECTRO-KLEAN and new heating/cooling system in a surprisingly high number of cases. And on every ELECTRO-KLEAN sale you make a *full profit*... there's no competitive price-cutting.

For stories about the successes others are enjoying with ELECTRO-KLEAN, contact your distributor. Or write: Mr. F. Robert Walker, Electro-Klean Sales Manager, American Air Filter.



American Air Filter

215 Central Ave., Louisville 8, Ky.

"BETTER AIR IS OUR BUSINESS"

NEW LESLIE *VersaCAP*

Cuts Your Stock Requirements



2/3



The Only Adjustable Vent Cap

VERSACAP's exclusive adjustable collar greatly reduces inventories since four models fit pipe diameters from 2 1/4" thru 8 3/4" inclusive. Now, for the first time, dealers can afford to stock a cap for double-wall metal vents.

Check these Important Features:

- Reduces your cap inventory by 2/3
- Wide-range adjustable collar (pat. pend.)
- No down draft
- Positive draft action (four 360° openings)
- Clean modern design
- Bird proof
- Clog proof from debris, snow and ice
- Baffles stop rain and snow
- Available in corrosion resistant aluminum
- For all fuels . . . gas, oil, coal, wood

The all new design insures top performance on double-wall metal vents, standard chimneys and any roof terminated vent pipe. Improved performance from the circular louvered design, plus a modern unobtrusive appearance. VERSACAP is so versatile it can be used for any type of installation. Solve those problem jobs . . . eliminate costly call-backs . . . stock and install the VERSACAP.



Write today for the new **VERSACAP**

catalog sheet

LESLIE WELDING CO., INC.
11243 W. MELROSE ST. • FRANKLIN PARK, ILLINOIS

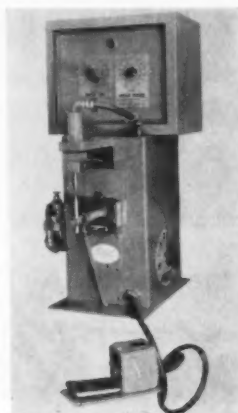
equipment developments

(Continued)

drum assembly—including mounting flanges, bearing support, motor support, and belt tube—is fabricated of solid vinyl and welded air tight. The bearing assembly incorporates a stainless steel shaft with labyrinth flinger to keep corrosive condensate from the bearings —*Propellair Div., Robbins & Meyers, Inc., Springfield, Ohio.*

Bench Welder with Timing Controls

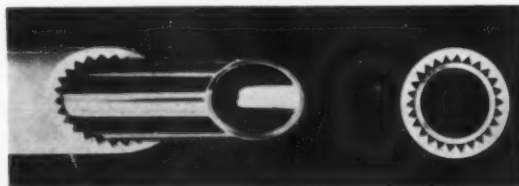
MODEL BW bench welder with air-press operation, an electric foot switch, and squeeze-weld timing controls. The squeeze-weld timer permits the electrodes to compress the work before welding. Model is rated at 1 1/2 to



3 kva, measures 15 in. high, 8 1/2 in. wide, and 9 in. long. The 90 lb unit has a 1 in. diameter cylinder and a 1 in. stroke, and is capable of 100 lb pressure. Other features include a solenoid valve, air combination regulator, oiler, filter, pressure clock, 3-step heat selector and lower brace—*Alphil Spot Welder Mfg. Co., 1058 Pacific St., Brooklyn 38, N.Y.*

Insulated Copper Tubing

"THERMOTUBE" heat insulated copper tubing is made of a polyvinylchloride jacket that is factory extruded over the copper tubing with an inner profile of star



shaped serrations. The tips of these serrations rest on the copper tubing leaving longitudinal air channels which act as insulation, according to the manufac-

...finding price competition tough?

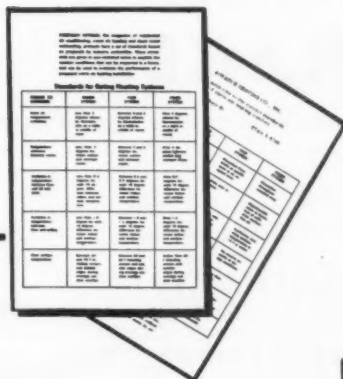
**ADVANCE THE SALE
OUT OF THE
"LOW PRICE" CLASS**

by using American Artisan's

STANDARDS FOR RATING HEATING SYSTEMS

and

**STANDARDS FOR RATING
RESIDENTIAL COOLING SYSTEMS**



Use these proven sales tools to show the prospect how to purchase a heating system, a summer air conditioning system, or a complete year 'round residential air conditioning system and thus avoid the pitfalls of an inadequate system.

These *Standards* cards list the major points a prospect should consider when buying a heating, cooling or combination system. Words familiar to all prospects are used to explain the buying points and the classification of system performance into "GOOD", "FAIR" or "POOR" categories.

Classifications shown on the *Standards* cards are backed by data obtained from programs conducted in research laboratories and through field investigations.

Send
Coupon
TODAY!

STANDARDS CARDS MAY BE USED . . .

- by salesmen as sales tools
- as direct mail pieces
- as handouts at homeshow, fairs, etc.
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**Editors, American Artisan
6 N. Michigan Ave., Chicago 2, Ill.**

Send _____ Heating Standards Cards
Send _____ Cooling Standards Cards
at 2 1/4 cents each, cash with order.

NAME

ADDRESS

CITY STATE

equipment developments

(Continued)

turer. The jacket can be furnished in different colors to permit color-coding of multiple line installations—Columbia Technical Corp., 61-02 Thirtyfirst Ave., Woodside 77, N.Y.

Condenser Descaling Solution

"SCALE-CLEEN" is made with sulfamic acid and inhibitors that allow the acid to clean and dissolve scale without corroding or damaging metal, according to the manufacturer, who recommends it for acid cleaning of air conditioning water cooled condensers. The crystalline material, when dissolved in water becomes a strong mineral acid—Dearborn Chemical Co., Merchandise Mart Plaza, Chicago 54.

Roof Ventilators

FOUR power roof ventilator models range in capacities from 2720 to 27,290 cfm, in horsepower from 1/2 to 12, and by sound classification from 1 to 7. Manufacturer claims these roof fans feature a new airfoil design; venturi-type inlet; weather tight housing; direct connected drive; permanently lubricated motor; patented, pressure type, self cooled motor and motor

compartment; and low roof silhouette—Ilg Electric Ventilating Co., 2850 N. Pulaski Rd., Chicago 41, Ill.

Lowboy Gas Water Heater

MODEL 20C30 automatic gas water heater is 52 in. high and can fit into tight places such as low basements, crawl spaces, storage areas—wherever space is a problem. The entire tank surface is coated with

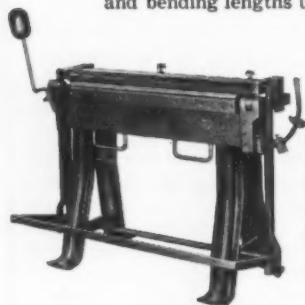


pure tin, according to the manufacturer. Each tank is individually tested at full hydrostatic pressure (330 and 400 lbs)—Allcraft Manufacturing Co., Inc., 27 Hayward St., Cambridge 42, Mass.



STANDARD BRAKES

Capacities up to 12-gauge sheet metal and bending lengths up to 12 feet.



FOLDER BRAKES

The simplicity and ease of operation make this a desirable machine for light sheet metal work. Seams and locks can be made efficiently. Capacity up to 20-gauge in three sizes of bending lengths of 36, 42, and 48 inches. Foot treadle clamp.



PORTABLE BRAKES

Set up shop right on the job. Capacity 20-gauge sheet metal in two sizes with bending lengths of 49 and 61 inches.

6095

Hand Operated

BENDING BRAKES

One Man Operation • Quick Adjustment • Rugged Construction



Descriptive Literature on Request.

DREIS & KRUMP
MANUFACTURING COMPANY
7404 S. Loomis Boulevard, Chicago 36, Illinois

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*an air-conditioning dealer
who's tired of
price cutting*

Good salesmen agree:

You combat price cutting by selling quality.

You sell quality by specifying unitary* air-conditioning equipment with the ARI Seal. Such equipment meets industry-approved performance standards, is subject to testing by an independent laboratory. All capacity ratings are based on a uniform set of standard conditions—expressed in Btu per hour. Any model failing to deliver rated capacity or to meet performance requirements must be brought up to standard or the Seal of Certification is withdrawn. When you specify units bearing the ARI Seal, you are *assured* rated performance.

Sell this assurance to *your customers*. Sell equipment *certified* to deliver rated capacity.

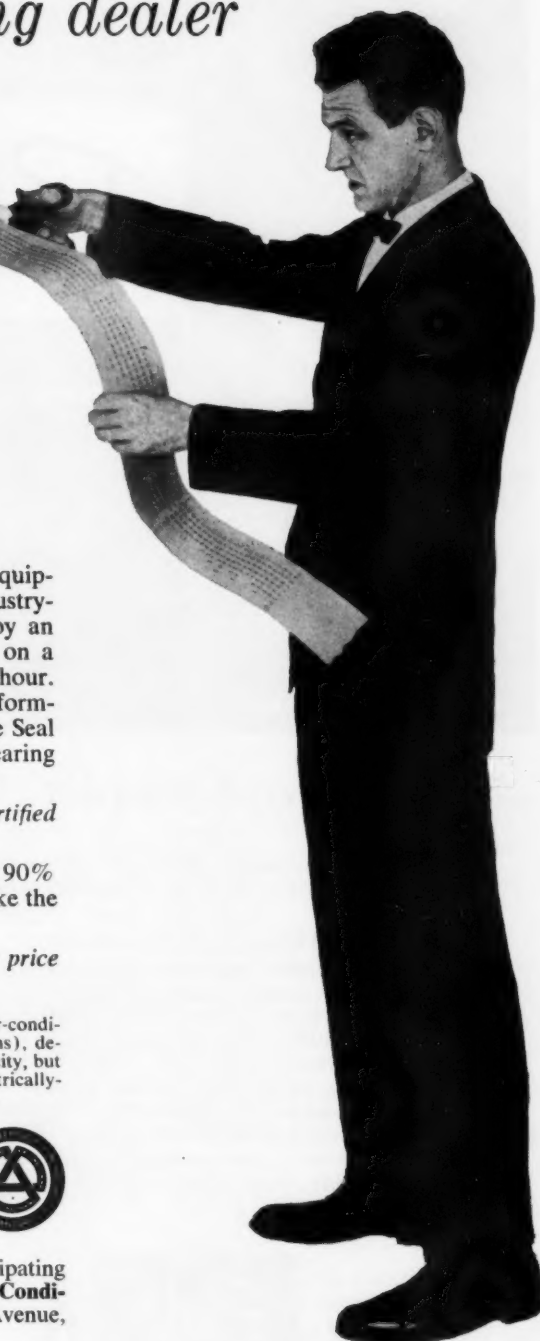
Fifty-one equipment manufacturers (producing more than 90% of the unitary air-conditioning equipment sold today) make the ARI Certification program possible.

Their support—and the ARI Seal—help you sell *without price cutting*.

* "Unitary" air-conditioners included in this program: all packaged air-conditioners, whether single units or two-piece units (called "split" systems), designed to be used together, up to 135,000 Btu per hour (Btuh) in capacity, but not including room air-conditioners. ARI Standard 210-58 for electrically-driven equipment; ARI Standard 250-58 for heat-powered equipment.

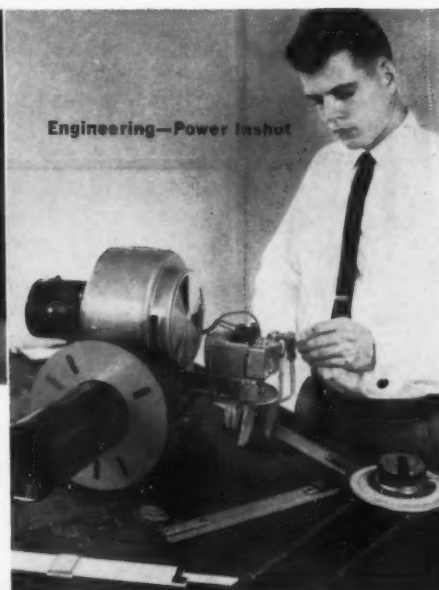


For free explanatory booklet and Directory of participating manufacturers, write to: Chief Engineer, Dept. C-904, **Air-Conditioning and Refrigeration Institute**, 1346 Connecticut Avenue, N.W., Washington, D. C.





Assembly—Upshot



Engineering—Power Inshot



Inspection—Tubeless Inshot

Barber



Fire Testing—Tube Inshot

...Kõm-plēt' Gas Burners

Webster defines Complete (Kõm-plēt') in many different ways—each of them describing Barber gas burners very well:

Com-plete', 1. Thorough; fully realized.

ENGINEERING: Barber engineers have *thorough* knowledge of the contractor's requirements. They know that all burners must be quiet, sturdily constructed, dependable, easily installed and serviced. They also understand completely, from constant field contact, the operational features peculiar to each type of burner in every application. Then, this *thorough* knowledge is designed into each model.

ASSEMBLY: Precision steel stampings simplify and expedite assembly, insure good fit and quality appearance.

INSPECTION AND FIRE TESTING: Finally, each burner is *fully realized* through rigid quality control, careful inspection and prototype testing to assure maximum performance.

Com-plete', 2. With no part lacking; filled up.

With more than 10,000 *different* models of heating units to be converted, burner manufacturers must offer a truly complete line—with *no part lacking*. So Barber manufacturers inshots, upshots and power burners ranging from 50,000 to 400,000 BTU's to fit every conceivable application.

Warehousing representatives listed on the facing page are *filled up* with Barber burners and ready to serve wholesalers with quick deliveries and competent technical service.

Manufacturers of
Engineered
Quality Burners
Since 1918



Write for catalogs and further information

The BARBER Manufacturing Company

1052 East 134th Street • Cleveland 10, Ohio
MULberry 1-8265

QUICK and EASY



IDEAL FOR ON THE JOB
OPERATIONS

NO. 2 PUNCH



The Punch for Overhead Door or other on the job installations as well as shop work. Light weight — powerful — simple construction — drop forged steel with wearing parts heat treated. CAPACITY — 9/32" hole thru 1/4" mild steel. LENGTH 22", WEIGHT — 14 lbs. DEPTH OF THROAT 1 7/8". Stock size punches and dies from 3/32" to 1/2" by 1/64th.

NO. 4B PUNCH



The No. 4B Punch in a metal box as shown, makes a handy tool in the shop or on the job. CAPACITY — 5/16" thru 18 ga. mild steel. LENGTH 8 1/2". DEPTH OF THROAT 2". WEIGHT — 2 1/2 lbs. Stock size punches 1/16" to 5/16" by 1/64th". Has perfect balance and natural grip — most powerful Punch of its size made. Ask your dealer to ship your No. 4B Punch in a metal box with six extra punches and dies.

W. A. WHITNEY MFG. CO.
636 Race St. Rockford, Ill.

equipment developments

(Continued)

Highboy Furnaces

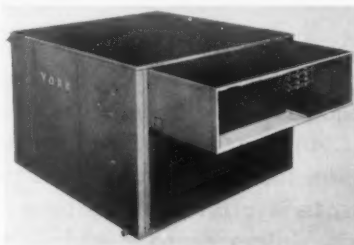
"ELECTRO-FLO" modulated electric furnace control offers up to nine stages of heating with a selective-sequencer which actuates from three to nine motor-operated switches, one for each pair of heating elements of approximately 10,000 Btuh, accord-



ing to the manufacturer. The furnace is available in four models—each offered for operation with 208, 220, 230 or 240 volts. Minimum Btuh output of the smallest size is 23,085, with the range extending to a maximum capacity of 92,205 for the largest furnace—*Stewart-Warner Corp.*, 1826 Diversey Pkwy., Chicago.

Heat Pumps

"PACKAGED" heat pumps for residential and commercial needs. Air cooled, attic type Pathfinder heat pump units are available in 2, 3 and



4 ton sizes. When needed, auxiliary electric heaters will supplement the heat output. Model HP36 provides heating when temperatures are as low as zero, and cooling when tem-



Complete BARBER Warehouse Stocks From Coast to Coast

These factory representatives warehouse the complete line of Barber Conversion Burners and replacement parts, as a service to wholesalers:

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Clary and Associates, Inc.
522 W. Peachtree, N.W. • Tel: TR 5-5361

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Walter F. Morris Co.
286 Roxbury Road • Tel: GARRISON 7-0062

Charlotte, N.C.

Territory: N. & S. Carolina
Paul Stack & Associates
4342 Central Ave. • Tel: FRANKLIN 7-4370

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Cleveland

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Represented in Ohio By:
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Territory: E. Pa., So. N.J., Md., Del., D.C.
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64 Daffodil Lane • Tel: WINDSOR 5-9089

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Territory: California
Al Jacquot Co.
1420 Grande Vista • Tel: AN 8-2057

Minneapolis

Territory: Minn., Iowa, Neb., N.D., S.D.
Sales Engineers Co.
6524 Walker St. • Tel: WEST 9-7803

New York City

Territory: New York, No. N.J.
Schwartz & Portnoy
708 E. Tremont Ave. • Tel: LUDLOW 3-8093

Portland

Territory: Ore., Wash., Mont., Idaho
Howard A. Weller Co.
2925 N.E. Glisan Ave. • Tel: BE 4-5077

Saint Louis

Territory: Missouri
Midwest Sales Co.
12719 Manchester • Tel: YO 6-4131

The BARBER Manufacturing Co.
1052 E. 134th St. • Cleveland 10, Ohio • MUlberry 1-8265

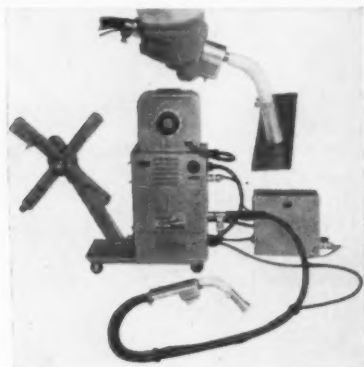
equipment developments

(Continued)

peratures rise to 115 deg. To supplement the compressors, step capacity electric heaters are built in. Remote 5 and 7½ ton heat pump models offer a variety of evaporator sections and coils to meet a wide range of application requirements—York, Division of Borg-Warner Corp., York, Pa.

Spot Welding Unit

METAL-inert-gas-shielded-arc spot welding unit can be used to spot weld from one side such metals as mild steel, galvanized carbon steel, stainless, aluminum and other metals from 0.030 to ¼ in. Space welding,



tack welding, and bead welding can also be accomplished. The equipment is capable of producing over 20 spots per minute using carbon dioxide, argon, helium, and other gas-shielding mixtures depending upon welding application—Hobart Brothers Co., Canal Lock Square, Troy, Ohio.

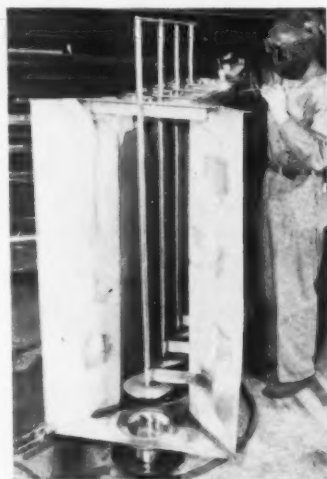
Dual-Fuel Furnace

OG4 DUAL-FUEL series is designed to be used as a central furnace, unit heater with directional discharge nozzles, or duct furnace with performance capabilities for the future addition of industrial air conditioning, a recent company announcement states. The heat exchanger has a cylindrical primary surface of 14 gage No. 430 stainless steel and is anchored at the burner end to a 4

There's Stainless Business



This huge saveall tray is made entirely of stainless steel.



Welder gives finishing touches to extension for head box. Box required a minimum of forming.



Stainless steel stock boxes of welded construction are easy to fabricate.

Pulp and paper mills are attractive sources for profitable stainless steel jobs. Most mills have standardized on this special steel for all equipment that is subject to severe corrosion or wear.

Mill expansion or modernization programs call for much equipment that can be handled in the average sheet metal shop. Vats, tanks, saveall trays, stock boxes, special welded assemblies and sub-assemblies are good examples. Once you establish your reputation for quality work in this field, each job will usually lead to more.

Your nearby distributor of Armco Stainless Steels has a Steel Service Center well equipped to supply your stainless needs. His mill-trained salesmen will gladly consult with you on fabricating techniques. If you don't know his name, you'll find it listed here.

in Pulp and Paper Mills



New steels are
born at
Armco

Distributors of Armco Stainless Steel

(A) Sheet, Strip & Plate

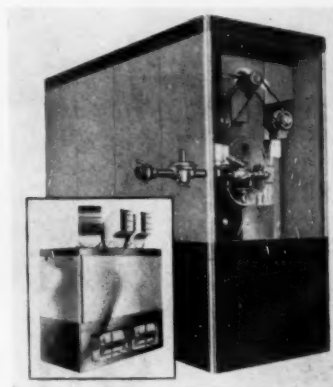
(B) Bar and Wire

ALABAMA Birmingham J. M. Tull Metal & Supply Co. (AB)	Syracuse Peter A. Frasse & Co., Inc. (AB)
ARIZONA Phoenix Ducommun Metals & Supply Co. (AB)	METROPOLITAN NEW YORK New York City Peter A. Frasse & Co., Inc. (AB)
CALIFORNIA Bay Area Ducommun Metals & Supply Co. (AB)	Hillside, N. J. Edgcomb Steel & Aluminum Corp. (AB)
Los Angeles Ducommun Metals & Supply Co. (AB)	Lynnhurst, N. J. Peter A. Frasse & Co., Inc. (AB)
San Diego Ducommun Metals & Supply Co. (AB)	New Brunswick, N. J. Morrison Steel Company (AB)
COLORADO Denver C. A. Crosta, Inc. (A)	Union, N. J. Mapes & Sprowl Steel Co. (AB)
Electric Steel Foundry Co. (AB)	NORTH CAROLINA Charlotte Edgcomb Steel Co. (AB)
Earle M. Jorgensen Co. (AB)	Greensboro Edgcomb Steel Co. (AB)
Metal Goods Corp. (AB)	OHIO Cincinnati Central Steel & Wire Co. (AB)
CONNECTICUT Hartford The American Steel & Aluminum Corp. (AB)	Cleveland Cleveland Tool & Supply Co. (B)
Peter A. Frasse & Co., Inc. (AB)	Viking Steel Co. (AB)
FLORIDA Jacksonville J. M. Tull Metal & Supply Co. (AB)	Columbus Vorys Brothers, Inc. (AB)
Miami J. M. Tull Metal & Supply Co. (AB)	OKLAHOMA Tulsa Earle M. Jorgensen Co. (AB)
Tampa J. M. Tull Metal & Supply Co. (AB)	Metal Goods Corp. (AB)
GEORGIA Atlanta J. M. Tull Metal & Supply Co. (AB)	OREGON Eugene Electric Steel Foundry Co. (AB)
ILLINOIS Chicago Central Steel & Wire Co. (AB)	Portland Electric Steel Foundry Co. (AB)
Chicago Steel Service Co. (B)	PENNSYLVANIA Philadelphia Edgcomb Steel Co. (AB)
KANSAS Wichita Earle M. Jorgensen Co. (AB)	Peter A. Frasse & Co., Inc. (AB)
LOUISIANA New Orleans Metal Goods Corp. (AB)	Pittsburgh William M. Orr Co., Inc. (AB)
The Orleans Steel Prod. Co., Inc. (A)	York Edgcomb Steel Co. (AB)
MAINE Auburn Brown-Wales Company (AB)	York Corrugating Co. (A)
MARYLAND Baltimore Seaboard Steel & Iron Corp. (B)	RHODE ISLAND Providence Congdon & Carpenter Co. (AB)
MASSACHUSETTS Cambridge The American Steel & Aluminum Corp. of Massachusetts (AB)	SOUTH CAROLINA Greenville J. M. Tull Metal & Supply Co. (AB)
Brown-Wales Company (AB)	TENNESSEE Memphis Metal Goods Corp. (AB)
Industrial Stainless Steels, Inc. (B)	TEXAS Dallas Earle M. Jorgensen Co. (AB)
Fall River Congdon & Carpenter Co. (AB)	Metal Goods Corp. (AB)
Worcester-Auburn Brown-Wales Company (AB)	Moncrief-Lenoir Mfg. Co. (AB)
MICHIGAN Detroit Central Steel & Wire Co. (AB)	Hartlingen Moncrief-Lenoir Mfg. Co. (AB)
MINNESOTA St. Paul Paper-Calmenson & Co. (A)	Houston Earle M. Jorgensen Co. (AB)
MISSOURI Kansas City Richards & Conover Steel & Supply Co. (A)	Metal Goods Corp. (AB)
North Kansas City Metal Goods Corp. (AB)	Moncrief-Lenoir Mfg. Co. (AB)
St. Louis Metal Goods Corp. (AB)	Lubbock Moncrief-Lenoir Mfg. Co. (AB)
E. E. Souther Iron Co. (A)	San Antonio Moncrief-Lenoir Mfg. Co. (AB)
NEBRASKA Omaha Gate City Steel, Inc.—Omaha (A)	Temple Moncrief-Lenoir Mfg. Co. (AB)
NEW YORK Buffalo Peter A. Frasse & Co., Inc. (AB)	WASHINGTON Seattle Ducommun Metals & Supply Co. (AB)
Industrial Stainless Steels, Inc. (B)	Electric Steel Foundry Co. (AB)
Seneca Steel Service Co. (AB)	Earle M. Jorgensen Co. (AB)
	Spokane Electric Steel Foundry Co. (AB)
	WASHINGTON, D. C. York Corrugating Co. (A)
	WISCONSIN Milwaukee Central Steel & Wire Co. (AB)
	DOMINION OF CANADA Montreal, Quebec Firth-Brown Steels, Ltd. (AB)
	Toronto, Ontario Firth-Brown Steels, Ltd. (AB)
	Vancouver, B. C. Esco, Ltd. (AB)

equipment developments

(Continued)

gage front plate. Secondary heating surface is 16 gage, 3 1/2 in. diameter aluminized steel tubing connected to stainless and aluminized headers. The



gas burner is the inshot type for natural, manufactured, mixed and LP-air mixtures—Lennox Industries, Inc., 200 S. 12th Ave., Marshalltown, Ia.

Heat Pump

"RANGAIRE" all electric heat pump is the remote system type which includes an outdoor condensing unit, indoor air handler and a supplementary heating unit. Its capacity is 35,000 Btu—Cobell Industries, Inc., 600 Wilhite, Cleburne, Tex.

Thermostats

"RT" SERIES of room thermostats feature a "sealed-in-glass" magnetic switch that provides dust-free opera-



tion and eliminates the need for cleaning contacts, according to the manufacturer, and does not require



ARMCO STEEL

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SELL MORE "TOUGH BUYERS" WITH REZNOR...

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Now you can satisfy "tough buyers" with just the right model heater for every job. The Reznor line features more types and sizes than any other! Choose from:

- Money-saving, space-saving unit heaters with three control options, propeller or blower fans, 25,000 to 30,000 Btuh.
- Low cost, versatile duct furnaces in capacities of 50,000 to 300,000 Btuh and up, for central heating, year-round air conditioning, or heating of make-up or process air.
- Matching, quiet-operating blower packages, if a separate air handler is needed.
- The new Reznor Venter, an automatic vent exhauster that lets you install Reznor unit heaters almost anywhere.
- Effective, five-way heaters for high ceiling applications, 300,000 to 600,000 Btuh.
- Heavy duty, forced air heaters, 400,000 to 2,000,000 Btuh, that you can floor-mount or suspend, and use with air discharge nozzles or ductwork.

Ask your distributor for a copy of Catalog SA-5900, with complete data on all Reznor heaters. Or write Dept. 68-H, Reznor Manufacturing Co., Mercer, Pa.



REZNOR HEATERS

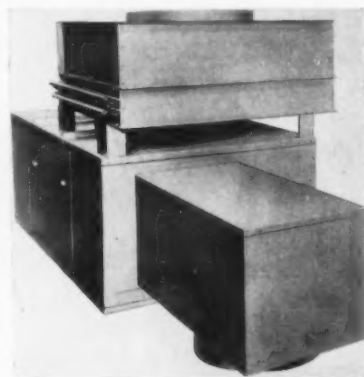
"WORLD'S LARGEST SELLING DIRECT-FIRED HEATERS"

equipment developments (Continued)

leveling. The line includes models for heating only, cooling only, or a combination of the two—Robertshaw-Fulton Controls Co., 911 E. Broad St., Richmond 19, Va.

Cooling-Heating Unit

ROOF MOUNTED 10 TON packaged air-cooled air conditioner and gas-fired heater combination offers a complete year 'round system for commercial and industrial buildings. The self-contained unit consists of a cooling system, gas-fired heating unit, air filters, blowers and controls. All



internal piping and wiring is done at the factory leaving only fuel and electrical connections to be made in the field. An air distribution plenum and diffuser is supplied with the unit. The unit measures 90 X 60 in., and is 80 in. high—Typhoon Air Conditioning Div., Hupp Corp., 505 Carroll St., Brooklyn 15, N.Y.

Water Heater

J-40 gas water heater has an input rating of 75,000 Btuh. According to the manufacturer, the 40 gallon automatic storage type heater has a recovery rate of over one gpm raised 100 F. The unit is 64 in. high, 20 in. in diameter, and features a low contour draft hood, inner flue collar extension, short Bunsen burner, and four-legged construction—The Hotstream Heater Co., 2363 E. 69th St., Cleveland 4.

NEW!

MAURLEE

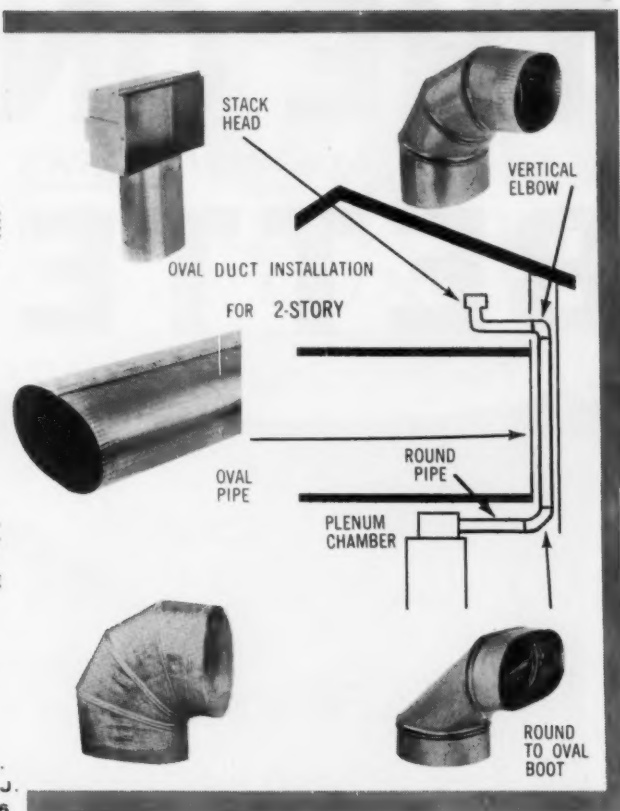
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Use Oval riser pipe and fittings in split level and two story installations. NEW MAURLEE Oval pipe and fittings are easier to handle, easier to install, and cost less than rectangular wall stock! Priced so that you will want to use it in many time and money saving ways.



AIR CONDITIONING DUCT
AND FITTINGS
FURNACE PIPE AND FITTINGS
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PHONE: Tilden 5-2306-6



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Standards For Rating Residential
Cooling Systems

Use these proven sales tools to show the prospect how to purchase a heating system, a summer air conditioning system, or a complete year 'round residential air conditioning system and thus avoid the pitfalls of an inadequate system.

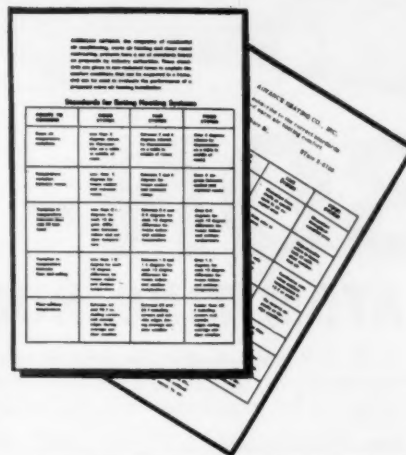
These *Standards* cards list the major points a prospect should consider when buying a heating, cooling or combination system. Words familiar to all prospects are used to explain the buying points and the classification of system performance into "GOOD," "FAIR" or "POOR" categories.

Classifications shown on the *Standards* cards are backed by data obtained from programs conducted in research laboratories and through field investigations.

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new literature . . .

Aluminum Pipe Welding

"RECOMMENDED PRACTICES for Gas Shield-Arc Welding of Aluminum and Aluminum Alloy Pipe" (\$2) describes processes and machine settings, welding techniques, heat treatment, and other phases of aluminum pipe welding. A conversion table presents the ASTM alloy designation and the corresponding commercial alloy number which has been adopted by the Aluminum Association. Another table recommends the filler metals which should be used for welding different combinations of aluminum alloys. Other tables indicate settings (current, gas flow, number of passes, etc.) required for various pipe sizes and thicknesses—*American Welding Society, Dept. T, 33 W. 39th St., New York 18.*

Forced Air Furnaces

SIX-PAGE BROCHURE, designed to double as a mailer when folded, features diagrams showing typical heating installations. Illustrations of products such as "Imperial" and "Pacesetter" forced air furnaces and brief descriptions of how matching cooling coils may be added are also included. Also illustrated and described are features of heating equipment such as heating element, blower, etc.—*The Payne Co., P. O. Box 2222, La Puente, Calif.*

Diffusers for Round Duct

BULLETIN describes "Duct-D-fuser" for spiral lock-seam duct installations in large areas such as factories or warehouses. According to the company, diffuser is installed in the duct run as simply as a coupling, without special fittings or duct attachments. It may be used in either heating or cooling applications—*United Sheet Metal Co., Inc., 540 S. Drexel Ave., Columbus 9.*



TYPE AL furnace limit control

Adjustable and non-adjustable. Bimetal sensing element is maintained in a completely exposed position in the air stream for fast temperature response. Temperature calibration and differential can be preset to your specifications up to 300° F. Standard factory differential is 25° F. Can be supplied with a closer or wider differential on request. Adjustable feature at no extra cost. Standard range of adjustment is 90° F. 40° F. range also available. Furnished with either 3-inch (AL-3) or 7-inch (AL-7) probe.

NEW THERM-O-DISC THERMOSTATS

for furnace fan and limit control applications



TYPE AF furnace fan control

Available with either a 3-inch (AF-3) or 7-inch (AF-7) probe which maintains the bimetal sensing element in a completely exposed position in the air stream. This rapid response position of the sensing element, combined with a snap-acting switch mechanism, provides fast and efficient furnace fan control. Adjustable with a range of 90° F. Maximum temperature 300° F. Factory differential is 25° F. Can be supplied with a closer or wider differential on request.

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additional
information
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AMERICAN ARTISAN, SEPTEMBER 1960

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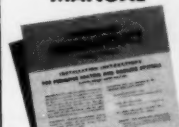
Low first cost, faster installation, highest quality—you get all three when you use F.H.A.-permitted SONOAIRDUCT Fibre Duct for slab perimeter heating, cooling, or combination systems.

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FREE
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MANUAL



Contains latest, detailed, step-by-step installation data for SONOAIRDUCT Fibre Duct. For copy, send us name, address on company letterhead.

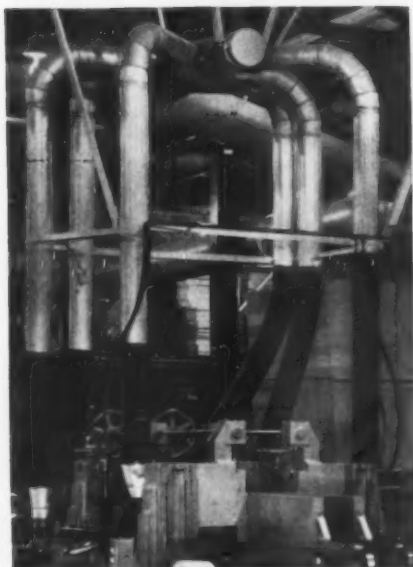
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new literature

(Continued)

Registers and Grilles

CATALOG 59 A.I.A. File 30-J covers grilles, registers and diffusers for heating and cooling applications. Products described include individually adjustable registers and grilles, return air grilles, horizontal and vertical single flap registers, perimeter baseboard and floor diffusers, out-of-wall intakes and registers, ceiling diffusers and accessories. Included are ordering information, performance charts, dimensional data and shipping weights—*J. B. Smith Co., 3327 B. St., Philadelphia 34, Pa.*

Tubing Tools

TUBING TOOLS for cutting, flaring, bending, reaming and swaging operations are described and illustrated in catalog No. 3121 (32 pages). A list of replacement parts is included. Also included is a list of service aids such as an engine and machinery cleaner and air nozzles for clearing fuel-line plug ups, etc.—*The Imperial Brass Mfg. Co., 6300 W. Howard St., Chicago 48.*

Oil-Fired Furnace

OIL-FIRED "BLUE RIBBON" furnace designed for use either as a horizontal or counterflow unit is described in form No. 168. Illustrations include product photos as well as installation diagrams. Engineering data and specifications are included—*Thatcher Furnace Co., Garwood, N. J.*

Air Intake Units

"GAS-FIRED AIR INTAKE UNITS" (12 pages) describes units with capacities from 15,000 to 90,000 cfm. Information given includes construction and control details, performance data and dimensions. Ask for bulletin A-117—*Hartzell Propeller Fan Co., Div. Castle Hills Corp., 1025 Roosevelt Ave., Piqua, Ohio.*

new literature

(Continued)

Metalworking Machinery

METALWORKING HYDRAULICALLY operated presses for punching, shearing, forming, notching, bending, coping, squeezing, and riveting are described in catalog No. 60 (56 pages). Also described are portable and bench mounted hand operated punches and presses, as well as tooling for both hand and power operated units. Specifications are given for hydraulically powered machines from 5 to 90 tons capacity—*W. A. Whitney Mfg. Co., 636 Race St., Rockford, Ill.*

Thermal Insulation

TECHNICAL BULLETIN presents thermal and acoustical characteristics of "Fine-Fyber" felt insulation designed for service in temperatures ranging from below freezing to 450 F. Photographs illustrate how insulation is applied. Request bulletin J-661—*Baldwin-Ehret-Hill, Inc., 500 Breunig Ave., Trenton 2, N.J.*

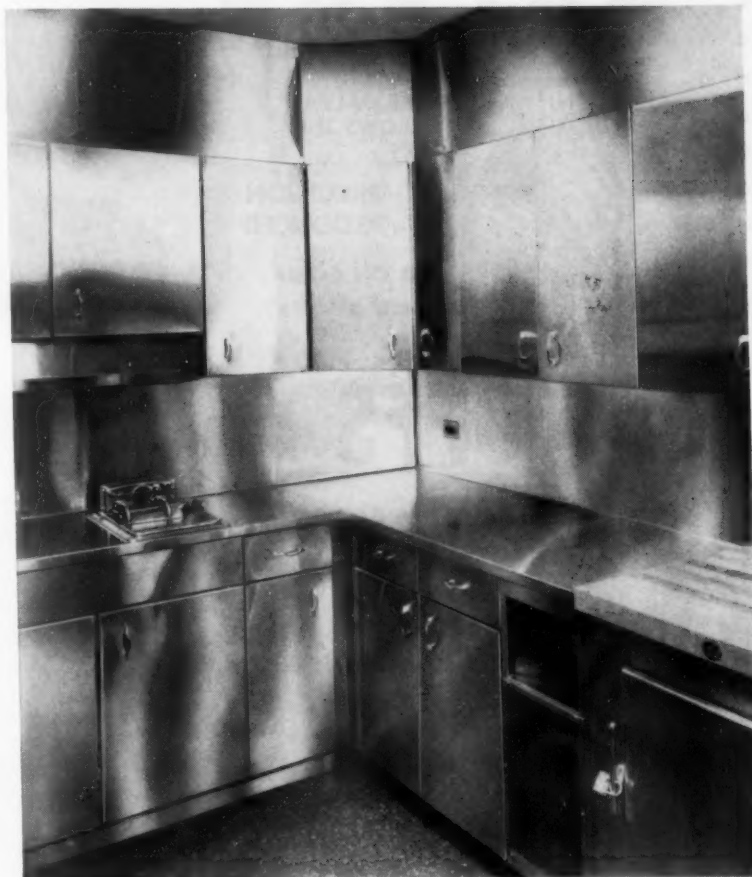
Oil Burner Fuel Units

FUEL UNITS FOR OIL BURNERS, both single and two-stage, are discussed in Issue No. 13 of "Facts 'n Figures." The bulletin covers operation and servicing, tells how to check for pressure and vacuum, gives correct line sizes for two-pipe installations, and presents helpful facts on fuel unit performance—*The Carlin Co., 912 Silas Deane Highway, Wethersfield, Conn.*

Attic Fans

"VENTURA" ATTIC FANS for residential ventilation are described in bulletin A-114 (four pages). Capacities for various fan sizes are tabulated as well as fan speed, motor hp, nominal wheel diameter and approximate net weight. Installation drawings include mounting recommendations—*American-Standard Industrial Div., Detroit 32.*

"All exposed
and unexposed
surfaces shall be
of STAINLESS STEEL."



Cafeteria and Executive Kitchen, Continental Grain Co., Offices: New York City
Designed by Designs for Business, Inc., New York, N. Y.
Fabricated by Stainless Food Equipment Co., Newark, N. J.
Installed by Ben Merril, New York City

■ The specifications for this executive cafeteria called for all kitchen metal surfaces, both exposed and unexposed, to be constructed of stainless steel. Only lifetime stainless steel can offer the durability and ease of maintenance necessary for maximum sanitation in food handling.

■ MICROROLL STAINLESS STEEL was chosen for its consistent uniformity of gauge, outstanding finish and well-known fabricating qualities.

■ Why not investigate the advantages of stainless steel for your next project?



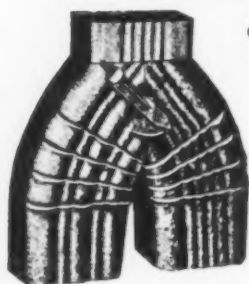
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In better residential building, the trend's toward installation of an air distribution system that really provides constant atmospheric comfort the year 'round . . . and Kno-Draft overhead air diffusers usually are the choice.

For warm or cold weather comfort, Kno-Draft diffusers provide draft-free air movement and even temperature throughout the conditioned area. This precisely engineered line has far more mixing efficiency than the average grille . . . enables easy, accurate, post-installation adjustment . . . and has a history of halving installation costs! Additionally, Kno-Draft fully satisfies home-owners' demands for a diffuser that offers clean, anti-smudge operation, freedom in placing furniture, and styling and color to match any decorative scheme.

From Connor . . . superior performance, complementary styling, low cost installation . . . an advantageous combination no competition-wise contractor would pass up. Write for complete data on the Kno-Draft line today.

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new literature

(Continued)

Aluminum Sheet, Building Products

ALUMINUM BUYERS GUIDE (20 pages) contains facts on aluminum coil, sheet and tubing as well as building products such as roofing, siding and store fronts. Tables show corrosion resistance, mechanical properties, tolerances, machinability ratings and finishes. Ask for technical bulletin 30-1—Joseph T. Ryerson & Son, Inc., Box 8000-A, Chicago 80.

Foil-Lined Fiber Duct

CIRCULAR describes foil-lined fiber duct especially designed for use in warm air heating and air conditioning systems in basementless homes. According to the company, foil-lined interior provides higher efficiency and less heat loss through duct walls. Other advantages listed include savings in material costs and ease of installation—International Oil Burner Co., 3800 Park Ave., St. Louis 10.

Plastic Welding

"MAKING BETTER PLASTIC WELDS" is designed for use as a training aid for both experienced plastic welders and men just entering the field. The book

contains 11 chapters including: Introduction to Modern Plastics; Plastic Welding Equipment; Welding Plastics; Tacking; Hand Welding; Semi-Automatic Speed Welding; Special Instructions; Inspecting, Testing and Evaluating Welds; Thermoplastics as Lining Materials; Useful Hints and Everyday Information; and Training Exercises. More than 100 illustrations are used to show details of operation. Individual copies sell for \$1; special prices are offered to schools, unions and companies desiring quantities — Laramy Products Co., Beechwood St. and Route 3A, Cohasset, Mass.

How to Paint Galvanized Steel

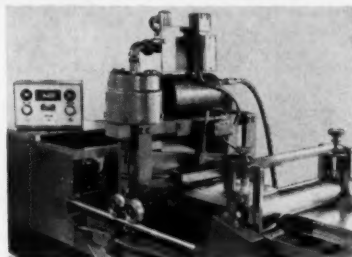
"PAINTING GALVANIZED STEEL" was produced jointly by the National Paint, Varnish and Lacquer Association, The American Iron and Steel Institute and American Zinc Institute, as an aid to those who wish to extend the service life provided by galvanized steel sheet. Included are a description of galvanized steel and an explanation of how zinc coating protects the base metal; recommendations for the selection of appropriate paint; descriptions of application techniques; and a discussion of special considerations such as the repair of galvanized roofs prior to painting, and the handling of galvanized rain-carrying equipment such as gutters—American Zinc Institute, 292 Madison Ave., New York 17.

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AUTOMATICALLY!



**ONE MAN PRODUCES
9000 FEET OF GUTTER
PER HOUR--AUTOMATICALLY!**



Exclusive air operated FLYING SHEAR automatically snips metal where you want it with HI-SPEED, uniform precision. ELECTRONIC EYE automatically tells the flying shear the number of feet and inches of metal to be cut. You can change the length of gutter to be cut while the machine is operating. Capacities between 10-100 feet can be set with performance-satisfaction.

AMERICA'S ONLY HI-SPEED AUTOMATIC GUTTER MACHINE!

Imagine turning out 2½ feet of gutter per second in nearly any length . . . cut to the exact inch . . . while slashing overhead costs and boosting customer service. WELTY-WAY HI-SPEED CONTINUOUS GUTTER MACHINES do! Precision engineered units reduce basic material costs while utilizing warehouse space.

Save working capital when you buy in carload lots of galvanized iron, aluminum, copper and stainless steel. Prepare and store gutter for use on a moment's notice. WELTY-WAY takes up slack time and saves essential storage space. WELTY-WAY pays for itself in hours!

MAIL TODAY!

WELTY-WAY PRODUCTS, INC. AA2
714 1st Avenue N.W.
Cedar Rapids, Iowa

Please send full information on the WELTY-WAY products checked below:

.....Hi-SpeedPortable Gutter
Automatic Machine Machine
.....Hi-Speed MachineCollar Machine

Name
Address

stainless steel

- for longer life
- easier installation
- greater sales appeal

Vaporite

AUTOMATIC HUMIDIFIER

PRECISION BUILT TO AVOID COSTLY "CALLBACKS"

NEW COMPLETELY STAINLESS

MODEL 999

For any straight side warm air furnace

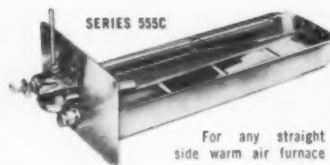


- Water leveling type
- New diaphragm design
- Only 4 lbs completely assembled . . . less than 3 1/4 lb. strain on bonnet metal or plenum wall

2 GREAT TIME-PROVED THERMOSTATIC CONTROL MODELS

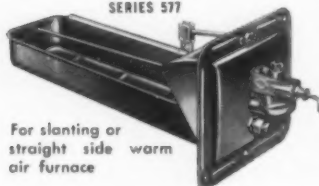
STAINLESS STEEL PAN . . .

heats more quickly . . .
vaporizes water faster
... resists chemical action of hard water . . .
lasts far longer



For any straight side warm air furnace

SERIES 577



For slanting or straight side warm air furnace

AUTOMATIC DRIP-FEED VAPORIZATION

Thermostatically controlled valve admits water to vapor pan in carefully measured amount for balanced humidity

PROVED BY 20 YEARS OF USE IN THE MIDWEST
... heart of the warm air industry

WRITE FOR FREE LITERATURE

AUTOMATIC HUMIDIFIER CO.
CEDAR FALLS, IOWA

Manufacturers since 1925 of a Complete Line of Automatic Humidifiers for Warm Air Furnaces

new literature

(Continued)

Roofing and Siding

"ECONO-LAP" ROOFING AND SIDING corrugated sheets are described in AIA File No. 12. Also described are typical flashing and fasteners available. According to the company, use of the sheets effects savings in both material and labor—*Steelite Buildings, Inc., 307 Fourth Ave., Pittsburgh 22.*

Home Air Conditioning Promotion

PROMOTION KIT for dealer-contractors and distributors features a booklet designed to help sell the concept of year 'round air conditioning to homeowners. Entitled "Carrier 12-Month Home Air Conditioning," the booklet explains that true air conditioning is more than cooling alone — that it should provide, on a year 'round basis, for control of humidity, odor removal and air cleansing as well as temperature control. Benefits, types of systems available, ratings and specifications are listed.

The kit also contains window streamers, mats for newspaper advertising, suggested sales letters with reply cards, radio scripts, lawn signs for builders, and a 12-page envelope enclosure giving the same data as the booklet—*Carrier Corp., Syracuse, N.Y.*

Warm Air Furnace Standard

NEW EDITION of the Commercial Standard for warm air furnaces, designated "Warm-Air Furnace-Burner Units Equipped with Pressure-Atomizing or Rotary-Type Oil Burners," CS195-60, covers both gravity and forced air furnaces having specified input ratings of 560,000 Btuh or less. It includes definitions, general requirements, furnace design and construction, performance, test codes, publication of furnace ratings, labeling, and installation requirements. Copies are priced at 15 cents—*Superintendent of Documents, U.S. Government Printing Office Washington 25, D.C.*

Dual Duct Air Mixing Units

SOUND DATA for dual duct mixing units is presented in engineering data sheet E-29. According to the company, data was furnished and certified by an acoustical consultant, following tests on air units which mixed air volumes ranging from 200 to 800 cfm—*Buensod-Stacey Corp., 45 W. 18th St., New York 11.*

Welding

FOLDER LISTS 50 WELDING TRAINING AIDS, including books, charts, educational films, welding codes and welding specifications—*Hobart Welding School, Box DM-150, Troy, Ohio.*

DEPENDABLE

Boiler & Furnace Vacuum Cleaner

Pullman

NEVER-CLOG®



**THE WORLD'S LEADING FURNACE CLEANER
YOU CAN DEPEND ON PULLMAN
WITH THE "NEVER-CLOG" AIR FILTER BAG**

• Cleans oil, gas, coal or wood fired furnaces • Exclusive "Never-Clog" Filter guarantees full time suction • Miracle Filter resists soot, soot acids, alkalis, rot and mildew • Flame resistant • Easily cleaned by gentle tapping • Completely rejuvenated by washing • Proven long use — up to 1400 cleaning jobs without change •

PULLMAN PROFESSIONAL KIT FOR EVERY JOB

1. Exclusive "Never-Clog" Filter bag
2. 27" Metal crevice tool
3. Power Blower Nozzle of Tapered Rubber
4. Handy Scraper Tool
5. Flexible Metal Asbestos-Packed Hose
6. 10' Long 1½" Heavy Duty Hose

ON SALE AT YOUR JOBBER. WRITE FOR LITERATURE.

Pullman

**VACUUM CLEANER
CORPORATION**

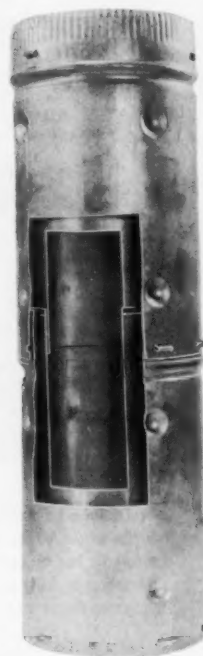
Dept. AA-9, 25 Buick St., Boston 15, Mass.

FOR THE EASIEST
WAY TO VENT GAS
FIRED HEATING EQUIPMENT
AND WATER HEATERS

THOR

presents
**A NEW ADDITION
TO THE FAMILY**

**DOUBLE WALL
SAFETY-VENT
& FITTINGS**



**EXCLUSIVE WITH THOR
"VISUAL LOCKING CLIPS"**

—PROMPT DELIVERY—
**FINEST WORKMANSHIP TO
SAVE YOU TIME AND MONEY**

**AREAS NOW OPEN FOR
DISTRIBUTORS**

THOR METAL PRODUCTS CO. INC.

EAST MOLLOY ROAD, P. O. BOX 218
EASTWOOD STATION, SYRACUSE, NEW YORK

we hear that . . .



MR. AND MRS. GABE MARIN receive keys to working replica of a 1901 Oldsmobile from Arnold Michelson, vice president of Minneapolis-Honeywell Regulator Co.

- **WINNER** of Minneapolis-Honeywell Regulator Co.'s 75th anniversary "Win-A-Wagon" contest was Gabe Marin, president of Sun-Ray Oil Burner Mfg. Co., Jamaica, N.Y. Mr. Marin won the prize by guessing the number of times a torture-test model of the

Honeywell R478 electronic flame safeguard would cycle before it was arbitrarily stopped at the end of the contest period. The contest, open to manufacturers, wholesalers and dealer-contractors in the heating industry, was staged as part of a program to focus attention on modern heating control equipment.

- **THE PAYNE CO.** has extended distribution of gas-fired unit heaters, previously offered only to West Coast markets, into all territories. According to William F. Steiner, sales manager, "addition of the unit heater lines will offer dealer-contractors greater opportunities for many additional commercial and light industrial jobs."

- **THE TRANE CO.** plans the construction of a 120,000 sq ft addition to its manufacturing plant at Clarksville, Tenn. The addition, with new manufacturing equipment, will represent an estimated cost of about \$1,200,000. It is scheduled for completion next February. With the addition, the total square footage of the plant will be more than 270,000 sq ft, an increase of about 80 percent over the present plant area. Production capacity will be nearly doubled, according to the company. The Clarksville plant was built in 1958 for the manufacture of residential and commercial self-contained and air condi-



ALL
THIS

AND
NOW

ELECTRIC
STARTER

100% DUTY CYCLE
225 Amperes Rated Output
5 KW 115/230v AC
1 KW 115v DC
12.9 HP ONAN ENGINE

The world-wide respect and demand for this original Miller gas engine driven welder/power plant has never been greater. To this established popularity has now been added the convenience of Bendix drive electric starting as optional equipment on models AEA-200-L and AEA-200. Model illustrated and headlined is AEA-200-LE.

As a welder, as a power plant, as a pipe thawer, indeed, as a top hand from Canadian uranium mines to Brazilian cattle ranches — and on highway

construction jobs and repair ships between — the AEA-200-L stands quite alone as "the finest in the field." In addition to optional electric starter, road trailers and rubber tired running gear are also available.

Other Miller gas engine driven DC and AC-DC welder/power plants to 300 amperes at 100% duty cycle. Full particulars will be sent promptly upon request, or a demonstration can be arranged at your convenience.

Miller Electric Manufacturing Company, Inc., APPLETON, WISCONSIN

EXPORT OFFICE: 250 West 57th St. New York 19, N.Y. • Distributed in Canada by Canadian Liquid Air Co. Ltd. Montreal

NEW



SPACE-SAVING EFFICIENCY & FLEXIBILITY

with the *Roberts-Gordon*
"CYCLO-JET"

Here's the hottest news in years for commercial and industrial heating! Roberts-Gordon's *new*, complete line of "Cyclo-Jet" power pressure burners achieves a unique concept of peak efficiency fuel combustion in a truly compact package. It's the all-new "Cyclo-Jet" burner head that does it!

- Positive Combustion Air Control Insures Maximum Fuel Economy
- Uniform, Compact Flame Pattern over Wide Firing Range
- Completely Automatic Control System
- Gas, Oil or Dual Fuel Gas/Oil Models
- Capacities to 2,600,000 BTU's/hr. input

Factory assembled and tested, the "Cyclo-Jet" Burner is a *complete* fuel burning device and control system. Combining high efficiency with great compactness, the new "Cyclo-Jet" Burner Head is extremely flexible and simple to install.

Unique design of burner head forces gas and air into combustion chamber with cyclonic turbulence. This gives compact flame configuration with resulting high heat release, facilitating firing of equipment normally presenting difficult combustion problems.

Accurate combustion air control with either fuel eliminates need for induced draft fan or tall chimney. Fixed firing rate, two-stage or fully modulating gas control systems are available. Dual gas/oil burners are designed for quick manual or automatic fuel changeover. Low-fire start and pre- and post-purge are optional. Totally enclosed control panel is standard. Panel lights indicate when controls are energized. Electronic-interrupted pilot control system gives safe, positive main flame supervision. Fully factory guaranteed.

Cash In On the Profit Opportunities of the Revolutionary New "Cyclo-Jet" Power Pressure Burner Line NOW! Contact Your Roberts-Gordon Dealer or Write Us Direct.



**ROBERTS-GORDON
APPLIANCE CORP.**

44 Central Ave., Dept. AA, Buffalo 6, N. Y.

In Canada — Grimby, Ontario



BIG STEP in Modernizing a Duct System

Seal it with Arno Ductape. Unsealed ducts can't be efficient. A test in a typical home increased air flow at room registers an average 21% — simply by sealing all accessible duct joints with Arno Ductape, which sticks instantly and holds permanently.

Customers like and gladly pay for results like this. It's a low-cost service that makes friends — and profits, too.

If you are not now using Arno Ductape why not make your own test of the income and goodwill opportunities of this service? We'll gladly send a sample roll for demonstration.

SEND
FOR
FREE
SAMPLE



Arno

ADHESIVE TAPES, INC.

Warehouses at New York, Detroit, Atlanta,
Minneapolis, Ft. Worth and Los Angeles.
Sales offices in other principal cities.

ARNO ADHESIVE TAPES, INC.

Dr. Scholl's Adhesive Tapes Division
4110 Ohio Street, Michigan City, Indiana

Please send me a free 15-ft. sample. ☐ Flame-resistant, ☐ Non flame-resistant. I am a ☐ Jobber, ☐ Contractor.

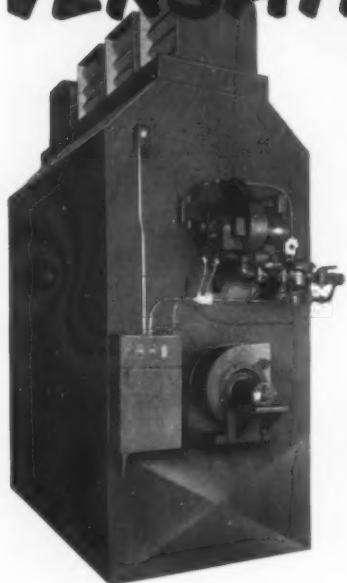
Name _____
Company _____
Street _____
City _____ State _____

MANUFACTURERS AGENTS WANTED FOR SELECTED AREAS

J-C

Today's most

VERSATILE

direct-fired unit heater

Model JC-200
2,000,000 Btuh
output. Oil, gas
or dual fuel.

Floor-mounted, horizontal, or inverted, this quality-built, factory-assembled, and fire-tested Jackson & Church direct-fired unit heater is proving ideal for hundreds of large-area heating jobs. Stainless steel, airfoil design combustion chamber eliminates refractory linings. Saves money on installation and maintenance. Available in outputs from 400,000 to 2,000,000 Btuh. Up-date your files with current specs. Write today.

J-C

AMERICA'S LARGEST AND MOST COMPLETE WARM AIR FURNACE LINE.



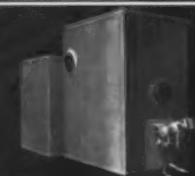
12 Oil-fired Suspended models 123,000 to 1,000,000 Btuh output.



11 Gas-fired Suspended models 160,000 to 320,000 Btuh output.



12 Powered Tubular models 208,000 to 320,000 Btuh output—Oil, gas or dual fuel.



37 Powered Tubular models 400,000 to 3,800,000 Btuh output—Oil, gas, dual fuel, or stoker firing.

J-C**JACKSON & CHURCH**

DIVISION OF

YORK-SHIPLEY, INC.
YORK, PENNSYLVANIA

Pioneers and Specialists in Automatic Heat Boilers to 600 hp. Furnaces to 4,750,000 Btuh

we hear that

(Continued)

tioning units and heat pumps. Since it began operation, production has increased to the point where the plant is now utilizing its full capacity.

Thirty-two graduates of U.S. and Canadian colleges recently completed the company's specialized engineering program. The training program includes courses in air conditioning, heating, and specialized heat transfer theory and practice, to provide the young engineer with the specialized training he will need when he takes his place in the firm's U.S. and Canadian sales offices.

► A "FURNACE DEALER RECRUITMENT DRIVE," featuring cash awards for distributors who sign up the most new dealer-contractors, is now being conducted by the York Div., Borg Warner Corp. To help distributors approach prospective dealers, division officials have provided them with a floor finance plan designed to assist dealer-contractors display and sell York furnaces. Distributors are also being supplied with colorful mailing pieces explaining the new finance plan.

► KEASBEY & MATTISON Co. has moved its New York district sales office to the recently completed Time-Life Building at 111 W. 50th St.

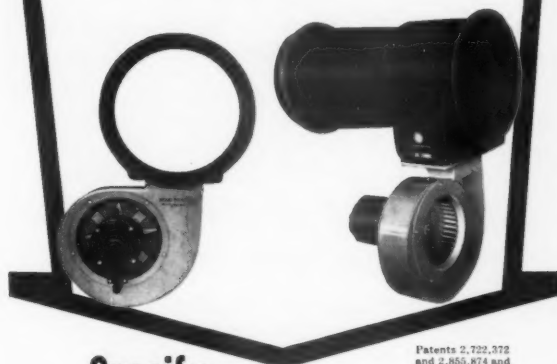
The company's Drexel Institute of Technology scholarship, awarded annually to a qualified student of Ambler (Pa.) high school whose career plans are directed toward a mechanical or an electrical engineering degree, this year went to Joel Lipkin. Full tuition for the first year and one-half tuition for the second and third year is provided under the scholarship plan.

► TENNEY ENGINEERING, INC.'s new plant at Wilmington, N.C., was recently dedicated by Gov. Luther H. Hodges of North Carolina. The new plant will ultimately employ some 250 to 300 persons.

► INLAND STEEL PRODUCTS Co. recently completed a new \$280,000 manufacturing plant in Fremont, Calif. The new plant, which replaces smaller facilities at Hayward, Calif., will produce several types of steel roof deck for the Pacific Coast market.

► RECORD VOLUMES in residential heat pump and air conditioning sales were reached in the first half of 1960 by the Perfection Div., Hupp Corp., according to Carl W. Millsom, sales vice president. "Every distributor who handles the Perfection line on an exclusive basis practically doubled his volume over last year," Mr. Millsom stated. Both remote and self-contained air conditioning products showed sales increases, according to Mr. Millsom.

**FOR MAXIMUM HEATING
OR EXHAUSTING EFFICIENCY
AT LOWEST COST**



...Specify

Quickdraft

Patents 2,722,372
and 2,855,874 and
Patents Pending
plus Exclusive
Foreign Patents.

**POWER-DRAFT UNITS
DESIGNED FOR RESIDENTIAL,
COMMERCIAL AND INDUSTRIAL
APPLICATIONS**

★ No motors, fans or bearings in exhaust line
★ Needs no stacks ★ Acid-resisting vitreous
enamel finishes ★ Extremely high static pres-
sures now available

FOR HEATING PLANTS AND INCINERATORS . . . *Quickdraft* provides constant draft for efficient and economical combustion. It eliminates pulsating or chattering, puffing, smoking and sooting. Costly, tall, unsightly stacks are unnecessary.

FOR INDUSTRY . . . *Quickdraft* now offers extremely high static pressures for EXHAUSTING corrosive gases, abrasives and paint sprays . . . for CONVEYING all types of bulk materials or wastes that can be moved by air.

FOR MOVING AIR in or out of buildings through ducts . . . *Quickdraft* is outstanding in performance and efficiency.

9010-QD

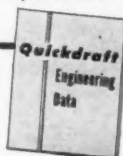
IMPORTANT NOTICE

To withstand corrosive gases, all *Quickdraft* units are available in standard acid-resisting vitreous enamel, No. 316 Stainless Steel, rigid plastics (P. V. C.) and with plastic and Fiberglass coatings.

Write today for *Quickdraft* Engineering Data.

**Quickdraft
CORPORATION**

P.O. BOX 87-D, • CANTON 1, OHIO



THAT'S THE ONE...
Power Flame
HAS THE RIGHT BURNER
FOR MOST APPLICATIONS

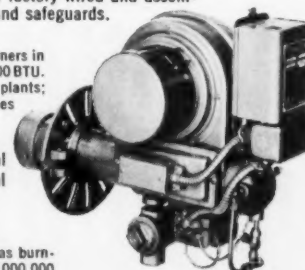
One single source of burners for most every application—that's what *Power Flame* offers you! In the fact-packed *Power Flame* Catalogue, you'll discover a complete range of models and sizes in atmospheric burners, power burners and combination burners. All designed for lowest installation and maintenance costs...all "torture tested" for highest efficiency and dependability. Hot idea: Next time, consult *Power Flame first!*

Power Flame GAS BURNERS

A model to fit every residential, commercial and industrial application. Completely factory wired and assembled, with modern controls and safeguards.

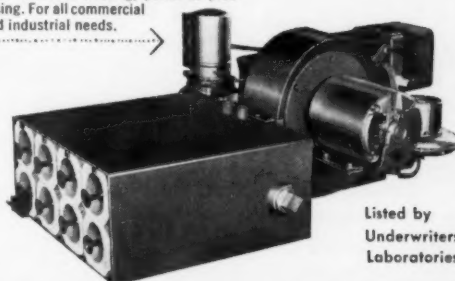
FG Series—Gun type gas burners in series to deliver 85,000 to 4,000,000 BTU. Adaptable to all types of heating plants; ideal for homes, schools, churches and commercial buildings

Flange or pedestal mount optional



A. G. A. Listed

BFG Series—Spread type gas burners; models from 450,000 to 20,000,000 BTU. Ideal for heating, power or processing. For all commercial and industrial needs.



Listed by
Underwriters'
Laboratories, Inc.

Write today for complete literature, information, and specifications on **POWER-FLAME** gas burners. Also get all the facts about **THORO-MIX** gas burners, and **COMBI-MATIC** dual fuel burners.

Power Flame
Division, Inc. / 1203 MAIN ST.
GRANDVIEW, MO.

we hear that

(Continued)



NEW TEMTROL PLANT contains more space for manufacture of heating controls, was designed to permit expansion as production needs increase

► **NEW HEADQUARTERS BUILDING** for West Coast operations was recently completed by the Temtrol Div., Penn Controls, Inc. The Los Angeles district office, managed by E. M. Ford, has moved its headquarters to the new plant, which is located at 2930 College St., Costa Mesa, Calif. The new plant also serves as a warehousing facility for West Coast customers.

► **MORE THAN 1000 JANITROL "SELECT DEALERS"** attended the company's Institute of Dealer Management Forum No. 7, which was held in 14 cities during

July and August. The meetings featured presentations by Harry C. Gurney, general sales manager; Charles C. Owen, national field sales manager; J. Thomas Calhoon, manager of local level advertising and promotion; and Ray F. Horan, who has directed the institute since its founding. Speakers discussed plans for selling the modernization heating market, which Janitrol officials believe will substantially exceed the new home market in 1960.

► **ALUMINUM BUILDING SHEET** recently introduced by Reynolds Metals Co. is now available at all Ryerson steel service centers. Sheet is available in both flat sheets and coils, in mill and embossed finish, and in five thicknesses.

► **D. A. FORBERG**, who has been vice president of Air Comfort Corp. since 1952, has been elected president. J. J. Smerz has been named executive vice president and will be in charge of sales.

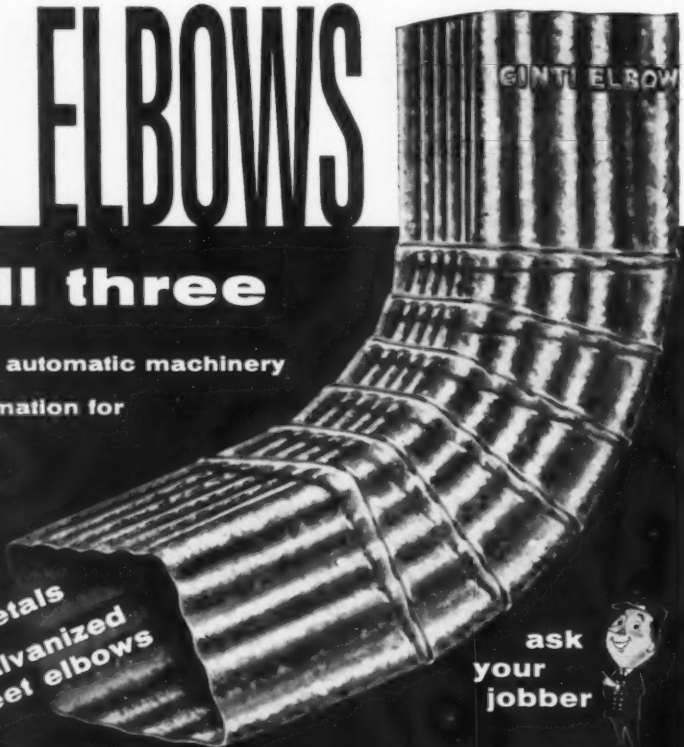
► **R. ULRICH**, vice president of Bacharach Industrial Instrument Co., has been elected a director of the National Oil Heat Institute, and chairman of the institute's testing and educational committee. Mr. Ulrich has authored several articles on simplified combustion and air measuring testing methods for proper oil burner installation and service.

CINCINNATI ELBOWS

give you all three

- 1** Precision formation by fully automatic machinery
- 2** Hot dipped in zinc after formation for smooth rust-resistant finish
- 3** Shaped with tapered ends. Guaranteed to fit all standard size pipe

• all angles
• all sizes
• all metals
• also galvanized sheet elbows



ask
your
jobber

CINCINNATI ELBOW CO.

4730 MADISON ROAD
CINCINNATI 27, OHIO

Zatko SILENTRIDE[®] V-Belts

... absorb
more vibration

... and this is not an idle claim! Laboratory tests back up "Silentride" performance in reducing noise and vibration.

"Silentride" Belts are especially designed for heating and air conditioning equipment, window and attic fans.

More information on request.

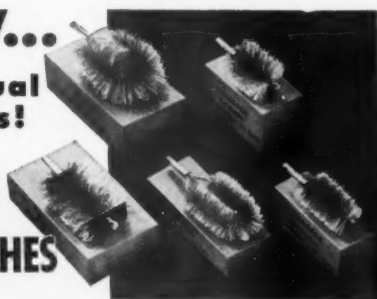
T. M. Pending.

Zatko METAL PRODUCTS CO.
20850 ST. CLAIR AVE., CLEVELAND 17, OHIO

Zatko—World's Largest Manufacturer of stamped one-piece Pulleys

NOW...
in individual
cartons!

**SCHAEFER
FLUE BRUSHES**



- No more pricked fingers or danger from rusted bristles.
- Easier to display, merchandise and handle.
- Longer-wearing SILVER-BRITE RUSTPROOF WIRE or Black Tempered Wire.
- Every Carton clearly marked as to number, shape, size or specifications.
- Each and every brush in its own carton insures clean stock and eliminates re-wrapping.
- There's a correct Schaefer Brush for every industrial and domestic use.

Schaefer's special alloy "Silver-Brite" rustproof spring steel wire has been developed for longer wear, more effective cleaning. Here's extra value, extra satisfaction in any brush and each is individually packaged for easier handling.

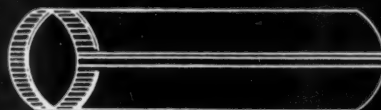
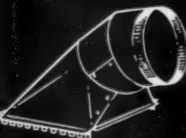
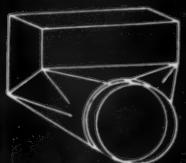
**NO INCREASE
IN PRICE!**

SCHAEFER BRUSH MFG. CO.
117 West Walker St.
Milwaukee 4, Wisconsin

BUY SCHAEFER—IT'S SAFER

Write for SCHAEFER Catalog on flue and furnace brushes, or for information on any special brushes for specific requirements.

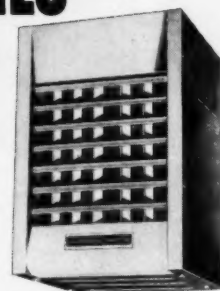
HANDY PIPE



is distributed thru
jobbers.
Write for the
names of those
near you.
F. Meyer & Bros.
Peoria, Illinois.

GREAT NEW PROFIT OPPORTUNITIES yours now with

...new Jackson & Church
gas-fired unit heaters



Propeller or blower fan types. Available with duct flanges or 4-way adjustable air-discharge louvers. Adjustable temperature-range thermostatic fan switch, manual summer operating switch, and 100% safety shutoff. Offered in capacities from 25,000 BTU to 500,000 BTU input. Operates on all gases.

Get acquainted with this great new J-C line. Their low prices and high performance records will surprise you. Write for full details today!

J-C

DIVISION OF

JACKSON & CHURCH

YORK-SHIPLEY, INC.
YORK, PENNSYLVANIA

Pioneers and Specialists in Automatic Heat Boilers to 600 hp. Furnaces to 4,750,000 Btu

wholesaler doings...



FOUR "SHOWROOMS ON WHEELS" cover seven county area around Los Angeles for Ashburn Supply Co.

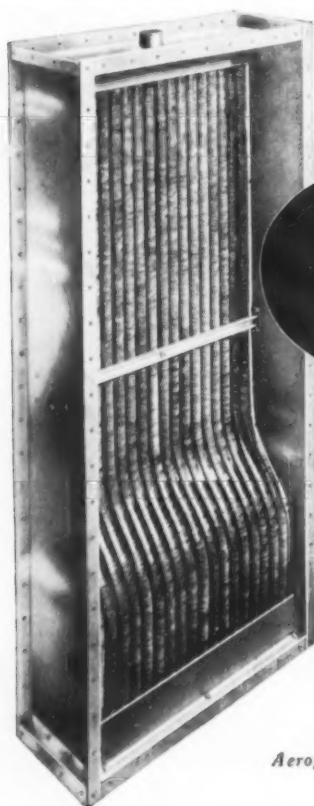
▶ ASHBURN SUPPLY CO., Los Angeles, has been appointed exclusive distributor for E. V. Nielsen, Inc. Ashburn will represent Nielsen in the sales of "Ramex" air hammers, "Kar-ry" shears and other products for the heating, air conditioning and sheet metal fields. Headquarters of the Ashburn firm are located at 8468 Warner Dr., Culver City.

▶ NEW CHICAGO AREA WHOLESALER for Copeland Refrigeration Corp. is the Service Parts Co., 2511 Lake St., Melrose Park, Ill. Pat Ravanese is manager of the Service Parts firm.

▶ R. J. WOODWARD, secretary and operational manager of the Palmer-Donavin Mfg. Co., has been elected chairman of the firm's management committee. Mel Charpier, product manager, heating and cooling, was elected vice chairman, and Fred Herb, credit manager, was elected committee secretary. Palmer-Donavin has offices at 750 Twin Rivers Dr., Columbus, Ohio, is a wholesale distributor of heating and cooling supplies, sheet metal supplies, sidings, and building specialties.

▶ WAUGH BROS. SUPPLY CO., Oklahoma City, will distribute "Heatwave" gas-fired furnaces and air conditioning equipment for Southwest Mfg. Co. In addition to its headquarters office, Waugh Bros. has branches located in Tulsa, Lawton, Amarillo and Lubbock.

▶ SID HARVEY INC. has opened a new facility at 22 Main St., Eatontown, N. J., which will serve the Red Bank, Long Branch and Asbury Park areas. It will be managed by Warren Sackett, former manager of the Trenton operation.



Heating? Cooling? Air Conditioning? Process?

**Here's How to
Get the RIGHT Answer to your
HEAT-EXCHANGE PROBLEMS**

The right ratio of surfaces—the right materials—the right velocities—the right proportion between coil area and depth . . . there are dozens of factors that affect the efficiency, maintenance and service life of heat-exchange coils.

For best performance in your own application, the practical approach is to take full advantage of the unequalled engineering, research and design skill—the unequalled manufacturing and testing facilities—which Aerofin offers you.

To get the *right* answer—ask the Aerofin man.

AEROFIN CORPORATION

101 Greenway Ave., Syracuse 3, N. Y.

Aerofin is sold only by manufacturers of nationally advertised fan system apparatus. List on request.

ASSURES TIGHTEST POSSIBLE SOLDERED SEAMS

- ... without any acids
- ... without any cleaning
- ... use 50-50 or 95-5 or other soft solders with equal assurance



With LA-CO Flux you can be sure of sound, leak-free soldered jobs every time. Its modern formulation clears the way for a perfect alloying of solder and metal . . . and stretches your solder dollars too.

LA-CO Flux makes physical cleaning and sanding old-fashioned. All the muscle is built right in, yet it costs no more. It works right through metal oxides, oil and grease — definitely *fluxes right through the chemical treatment coating on galvanized metals.*

Yet, with all this self-cleaning power, LA-CO Flux is completely free of acids. It will not stain metals or injure workers . . . is safe for use with foodstuffs, oxygen lines, etc.

LA-CO Flux (Regular) is used for soft soldering of copper, lead, galvanized iron, tin, zinc and other common metals.

See for Yourself! Hack-saw a LA-CO Fluxed soldered job in half and see the perfect bond. Write on company letterhead for sample of LA-CO Regular Flux (Liquid).

There are other LA-CO Fluxes for all specialized needs . . . in liquid, paste or handy stick form. Flux problems: Let our laboratories help; no obligation, of course.

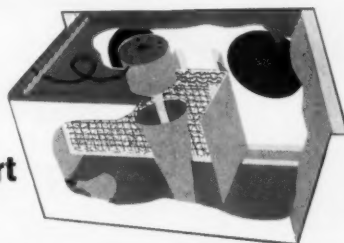
The Lake Chemical Co., 3072 W. Carroll Ave., Chicago 12, Ill.

Now a PROFIT-MAKING Humidifier!

Sell

Aqua-Aire

with its new revolutionary principle



Only one
Moving Part

Scientifically Controlled Humidity

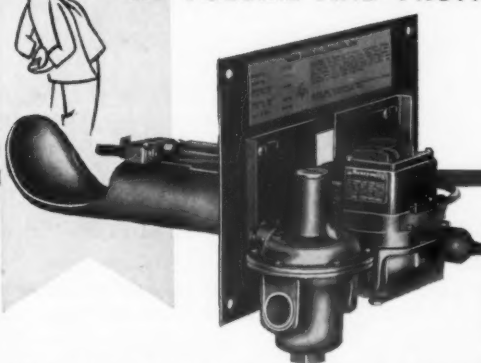
- Stainless Steel Construction
- No Excess Water Overflow
- No Electric Water Valve to Service
- Humidistat — 1/100 HP motor
- Dimensions — 10"x10"x18"

Write for further details to

B & D ENTERPRISES, INC.

Dept. 210
1041 E. Johnson St.
Madison 3, Wis.

MAKE SURE YOU HAVE A BANNER YEAR IN VOLUME AND PROFITS



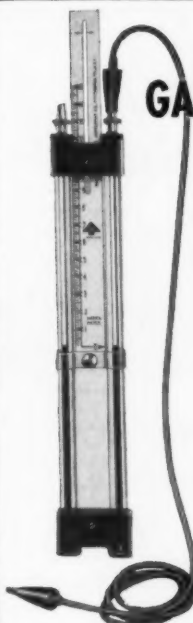
SELL AND INSTALL THE UNSURPASSED
OG-56 OIL-TO-GAS CONVERSION UNIT
by **BANNER BURNER**

- Flawless Design and Construction.
- No-Burn-Out, One-Piece Cast Iron Venturi and Flame Spreader.
- Fast, Easy Installation . . . Fits through Four-Inch Oil Burner Sleeve.
- M. H. Controls, Available in Powerpile or 24-Volt System.
- 60,000 to 150,000 BTU Input.

Write for complete details

BANNER BURNER CO.
227 EAST INDIANOLA AVENUE, YOUNGSTOWN 7, OHIO

BACHARACH GAS PRESSURE GAUGE



- Body is transparent, high-strength plastic extrusion.
- Scale features easy readability; made of white plastic, with black scale divisions and numerals; 1/10" W scale divisions.
- Indicating Fluid of 1.9 specific gravity permits pressure readings to 1/10" W over entire scale on gauge of convenient size. Fluid is colored blue for visibility; is non-freezing to low temperature. Gauge is furnished filled ready for use.
- Shut-off Valves are conveniently opened or closed by rotation of knurled discs.
- Scale is adjustable up or down to permit direct reading of pressure.
- Blow-over seal automatically prevents spilling of fluid when gauge is subjected to pressure surges in excess of scale range.
- Body serves as reel for rubber hose.
- For convenient attachment of gauge to gas pipe an adjustable mounting clamp is available as optional accessory.

Gauge supplied with 4 ft. rubber hose and fitting for test connection.

Gauge with scale 0-7" W
\$13.90 FACTORY NET
Gauge with reversible scale — 0-15" W on one side, and 0-8.5 ounces per sq. in. on other side.
\$17.80 FACTORY NET

Ask your Jobber or write for Leaflet 830

**BACHARACH INDUSTRIAL
INSTRUMENT COMPANY**
200 N. Braddock Ave., Pittsburgh 8, Pa.

The right SNIPS for the job!



KDC-9 COMBINATION CUTTER
Double Cam Action Combination Cutter made for Right and Left hand cutting — cuts straight or curves — a must for the sheet metal worker.
w/spur \$6.95

Klenk's double action tools give you 20% more power with less effort. This is made possible by more opening in the jaws and less opening in the handles. All Klenk tools are easy to assemble and any part can be replaced in a few minutes.

KARL KLENK, INC.
107-09 East Fifth Street
Wilmington, Delaware

*Be on Hand
when buying decisions
are made...*

SOURCES OF SUPPLY
INVESTIGATED

START YOUR PLANNING NOW
FOR ADEQUATE SPACE IN

American Artisan's

Big January 1961
issue which contains our
directory section.

wholesaler doings

(Continued)

► O'BRIAN & ASSOCIATES, 2999 N. Second Ave., Miami, has been named to handle distribution of packaged air conditioning units for the Crane Co. The company is owned by Frank O'Brian and has branches in Fort Lauderdale and Palm Beach.



Jim Hughes

► JIM HUGHES has been appointed sales manager of the Ohio Furnace Co., Columbus, Ohio wholesaler. Mr. Hughes joined the firm in 1957 as sales promotion manager. Before that he was with Armstrong Furnace Co. and has also been associated with the Airtemp Div., Chrysler Corp.

► NEW HEATING WHOLESALER in Kansas City, Mo., is Midland Heating & Cooling Supply Co., located at 814 W. 17th St. Headed by A. A. Loudis, the new firm will offer Day & Night residential and commercial heating and air conditioning equipment to dealer-contractors in the Kansas City area. Mr. Loudis was previously with the Johnson Furnace Co., Kansas City dealer-contractor, where he served as purchasing agent.

► KAMEN SUPPLY CO., INC., 623 E. Murdock St., Wichita, Kans., has been appointed a distributor of heating and air conditioning products manufactured by Century Engineering Corp. Kamen supply also has facilities located at 132 N. Kansas St., Topeka.

► A. & H. SUPPLY Co., 701 E. First St., Dayton, Ohio, will represent the Crane Co. in Dayton and the surrounding area. Charles Madison is manager of the air conditioning department.

► CELEBRATING THE OPENING of its new "aluminum mart" for residential building supplies, Souther Steel and Aluminum Co., St. Louis wholesaler, recently held open house for some 300 home builders in the St. Louis area. The new mart will stock some 35 home building products made of Reynolds aluminum, according to Lee J. Haines, president of the Souther firm.

Reynolds Metals Co. has worked with the Souther company in setting up the aluminum mart as part of a nationwide program designed to promote increased use of aluminum in building applications.

► CAPITOL SUPPLY Co. has been named to represent Perfection Div., Hupp Corp., in the Jefferson City, Mo., area.

BEVERLY ^{Electric} THROATLESS SHEAR

Cuts Any Shape in Metal
Easily, at High Speed

Provides 1725 cutting strokes per minute . . . correct speed to handle cutting, trimming and slitting operations in any metal to shear's capacity. Unique downward-forward shearing action provides faster, cleaner cutting; insures longer blade life. Operator's hands are free to feed and guide work through shear—permits accurate cutting to a line or template. Throatless design allows sheet to be turned in any direction during cut. Motor operates on 110V., 60 cycles, AC.



Slits 14 ga. mild steel at 15 ft. per minute. Cuts lighter gauges proportionately faster.

Complete with base and supporting column to provide most efficient and comfortable working height from floor. Can be used with base only as bench shear.



See your nearby Beverly Distributor for a demonstration or write today for illustrated circular.

**BEVERLY
SHEAR MFG. CO.**
3620 W. 111th Street
Chicago 43, Ill.

FLANGES THE DUCT *with Amazing Speed!*

Less than 5 seconds on short
and lighter pieces . . .
Slightly longer on bulkier pieces

MAKES PERFECT DRIVE-CLEATS TOO!

The **ONLY** tool that does both.
A complete drive cleating tool . . .
no set-up time . . . no adjustments.
Handy to take out to the job when
not needed in the shop. Turns idle
time into production time. Flanges
any square duct up to 20 gauge.
Quickly pays for itself in time,
material and labor savings.

No. 12 Smith's Cleat Bender
12" Wide —
No. 18 Smith's Cleat Bender
18" Wide —
No. 24 Smith's Cleat Bender
24" Wide —
No. 30 Smith's Cleat Bender
30" Wide —
Also Universal Cleat Bending
Brakes and Box and
Pan Brakes

Write for nearest
distributor

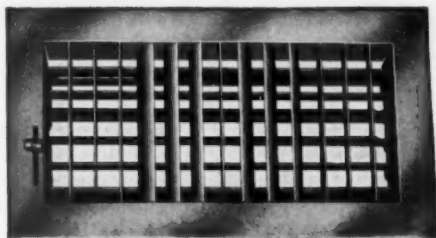


**PERFECT
DRIVE CLEATS**
fit the duct without
the use of a screwdriver.
TREMENDOUS SAVINGS
in erection time and labor.

R. E. SMITH MANUFACTURING CO.

1174 ELIZABETH STREET

WARRICK, INDIANA



MODEL AV-7—AIR VANE HIGH EFFICIENCY TYPE
For cooling and heating, four-way deflection
with multi-shutters



ARRO-FLO DIFFUSOR AF-20" and AF-30"

HIGH EFFICIENCY BASE-BOARD TYPE OUT-OF-WALL REGISTER FOR BOTH HEATING AND COOLING PURPOSES. Our distinctive Arro-Line styling blends with any surroundings, measuring only 3 3/8" in height, allowing for ideal installation under windows.

Write for Catalog

National **GRILLE AND
REGISTER CO.**

10740 Broadway Ave., Cleveland 25, Ohio



**FOR REPEAT PERFORMANCE...
SPECIFY AIRSERCO PRODUCTS!**

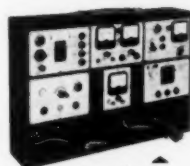
Get **TOP-DOLLAR
VALUE** in
Air-Conditioning
and Refrigeration...

•TESTING INSTRUMENTS

•PRECISION MEASURING EQUIPMENT

•HIGH VACUUM PUMPS

•HIGH VACUUM GAUGES, AND ACCESSORIES



Hermetic
Compressor
Analyzer



Capacitor
Analyzer



Sling
Psychrometer



Thermo-tester



KC-2R
High
Vacuum
Pump



Refrigerant
Charging
Board

See your
wholesaler
or write us
for free
catalog
today!

"Airservo has built more refrigeration testing
equipment than any other company in the world."

AIRSERVO MANUFACTURING CO.

435 Melwood Ave.

Pittsburgh 13, Pa.

merchandising ideas

► **APPEAL TO YOUR PROSPECT'S SENSE OF HUMOR** and he'll listen to your sales pitch in an attentive mood. That's the philosophy behind a personalized newspaper ad service which Lennox Industries Inc. makes available to its dealer-contractors for use in their local markets.

The service consists of a collection of 48 light-hearted "columns" which the dealer-contractor can have published in his local paper under his byline and picture. Dealers are encouraged to contract for a series of once-a-week insertions to build up a following of readers.

Under headings such as "Heating for Crows," "Attention, Status Seekers," "Caveman Comfort," "Thinking Men, Arise," etc., the dealer-contractor delivers a chatty, humorous comment on some matter of current interest and winds up with a hard-selling recommendation for heating or air conditioning.

► **NEW PROMOTIONAL ITEMS** available from the Oil Heat Institute's "Treasury of Advertising" include:

- 1) A ball point pen with "Better Heat With Oil Heat" and a four line company imprint.
- 2) A white plastic "pocket saver," which carries a three line company imprint and can be used in

conjunction with the pen or distributed separately.

3) A mailing piece entitled "You Deserve a Royal Treat in Oil Heat" (OHI 7080). This is also available with company imprint.

► **TO ENCOURAGE HOMEOWNERS** to replace furnace filters the recommended three times each heating season, Owens-Corning Fiberglas Corp. is now packaging "Dust-Stop" filters in sets of three. The filters are packed in a plastic bag on which is explained the advantages of regular replacement, and which provides for clean and easy storage of spares in the home's utility area.

According to a recent survey conducted by the company, 80 percent of homeowners who have forced warm air furnaces are changing their filters only once a year. If new filters were readily available, they would be replaced more often, the report indicates.

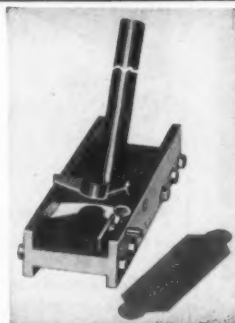
Facts about the study are presented in a sound strip for distributor or dealer-contractor meetings called "Talk About Sales." Also available to dealer-contractors are a free sales kit and a brochure entitled "It's a Triple," which explains how to get a promotional program started. Other sales aids explaining the advantages of spare filters are newspaper ad mats; counter and window displays; and banners for windows, wall and doors.



SWIVEL HEAD SQUEEZER TONGS ▲
For closing Government box lock connection on duct work and all standing seams. Swivel head makes tongs usable on all four sides, in either vertical or horizontal position.

for a complete
line of **HANDY
TOOLS AND
EQUIPMENT**
... see

CLEAT DRIVE NOTCHER ►
Handles up to 3" wide, 22 ga. or lighter. Hand or foot operation. Mounts on bench, or on job with clamps, or bolts and screws.



**CLIP
PUNCH** ►

For fastening slips or seams on ducts. Will push a "half moon" thru 3 thicknesses of 18-ga. steel. No hammering or flattening out to fasten slip to the duct.



**QUICK SET
DIVIDERS** ►

Fastest, most accurate on the market. Two sizes for circles up to 36" and 48". Removable steel points, or pencil. No center punch.



REINER & CAMPBELL CO., INC. P.O. Box 5035
Newark 5, N.J.

classified advertising . . .

Is the quick, economical way to find what you're looking for. Check the classified page each and every issue for real bargains and hard to find items. It's a quick and sensible means too, of disposing of tools, equipment, and anything else for which you no longer have use. Check the classified page for rates.

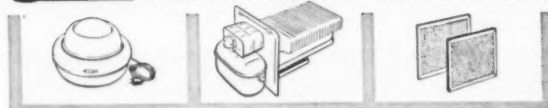
Skuttle's QUALITY LINE

of Humidifiers and Filters

means **MORE SALES**

MORE PROFITS for you!

Skuttle MANUFACTURING CO. • MILFORD, MICHIGAN





ORNAMENTS STAMPINGS & SPINNINGS

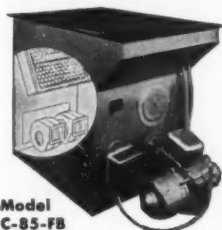
Zinc Ornaments Available From Stock. Copper, brass, bronze, aluminum and stainless steel ornaments made up promptly.

If you don't have catalog K, send for it NOW

MILLER & DOING

89 ADAMS STREET

BROOKLYN, N.Y.



Model
C-85-FB
OIL-FIRED
85,000 Btu
Output

FLOOR FURNACE with a FILTER

ONLY G/A HAS THESE ADVANTAGES

- 30" HIGH . . . 16 1/2" below joist
- INSULATED JACKET
- CIRCULATED, FILTERED AIR
- QUIET OPERATION
- RETURN AIR OPENING . . . to facilitate a return-duct if used
- EASY ACCESS . . . for filter removal or furnace service from top.
- PRE-ASSEMBLED & WIRED

GENERAL AUTOMATIC PRODUCTS
CORPORATION

2300 Sinclair Lane
Baltimore 13, Md.
EAsTern 7-7703

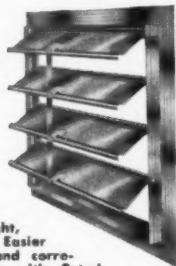
Get the complete story . . .
CALL, WRITE OR WIRE NOW:

Elgo Ventilating
Specialties

NEW! EXTRUDED ALUMINUM SHUTTERS

Shutters of modern design which give you all of these features: Lightweight, Full Weather Strip, Low Freight Cost, Easier Installation, Concealed Pivot Pins, Rust and corrosion Proof and Natural aluminum finish with fluted frames.

Write for complete specifications.



Free
CATALOG

ELGO SHUTTER & MANUFACTURING COMPANY
2736 W. Warren Detroit 8, Michigan

SAMPLES FREE
SODER STAINLESS
STEEL & ALUMI-
NUM RAPIDLY

FLUXES
SODERING
BRAZING & WELDING
L. B. ALLEN CO. INC. Chicago 31, Ill.

PEXTO

FERRULE FORMER

A real PEXTO exclusive, fast accurate, portable . . . can be mounted on bench standard or vise . . . for making ferrules on the job. Any length up to 7" . . . up to 24 Gauge . . . copper, aluminum, galvanized steel. Uses scrap metal for ferrules. Write today.



Operator inserting
metal in PEXTO
Ferrule Former.

THE PECK, STOW & WILCOX COMPANY, SINCE 1788, SOUTHINGTON, CONNECTICUT, U.S.A.

NEW COMPETITIVE WEAPON FOR CONTRACTORS! (see page 73)

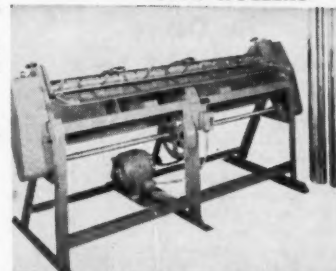
FALLSINGTON "OVER THE LOCK" PIPE ROLLERS

3' 5' & 10' MODELS

Ideal for Manufacturers of Snap lock pipe. Hundreds in operation!

A complete line of sheet metal machinery

Another Profit-making machine by



FALLSINGTON MFG. CO.
Write today for literature

Fallsington
Penn.

GO TO GOETHEL FOR FAST SERVICE ... WE HAVE WHAT YOU NEED



FULL BLAST
GATES 3"
and up
STOCK



HALF BLAST
GATES 3"
to 8"
STOCK

FLANGES &
GASKETS
BLOWPIPE
ELBOWS
DUST
COLLECTORS
& FITTINGS
PVC PLASTIC



▲ BALL JOINTS
3" to 12" STOCK

HOODS —
PIPE — ELBOWS
Immediate ship-
ment on stock
items. Write for
price list.

PIPING 1/2"
& LARGER, 16 ga
and LIGHTER

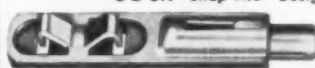
Alfred Goethel Sheet Metal Works, Inc.
3218 W. Fond du Lac Ave.

Milwaukee 10, Wis.

E-Z-ONS

Cost Less
Offer MORE!

E-Z-ON "Snap-Tite" Design No. 29



Special tail piece has retractable snap end bearing . . . eliminates need to bend damper or spring duct to insert damper.



You pay less and get more features with speedy E-Z-ON damper regulators, because they're design engineered to do a better job . . . quicker.

Here's Proof: • Lower Price . . . Means Lower Cost to You
• Double Prongs Mean Double-Grip . . . No chance of swiveling
• Washer is Permanently Attached . . . No loose washer to drop or fall in pipe
• Modern "Swept" Wing Nut is Eye-appealing . . . Adds new beauty to installations
• Balanced Construction . . . Prevents possible binding of damper in duct.

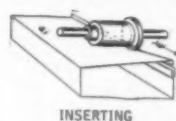
M. A. GERETT CORP.

724 W. Winnebago St., Milwaukee 5, Wis.
all leading jobbers stock E-Z-ON
Starkest in Canada by THERMIDAIRE CORP., 7-9 Cumberland St., Toronto

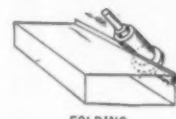
NOISELESS HAMMER For Closing Pittsburgh Lock Seams

The Noiseless Hammer is designed to close Pittsburgh Lock Seams of metal ducts faster and easier than any other method. Tool is effective on steel ducts up to and including 26 gauge; works silently and efficiently without power. It is 14½" long and weighs only 4½ lbs. for easy and convenient hand operation.

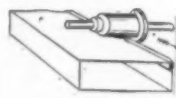
**CLOSES SEAMS IN 1/5 THE TIME
REGULAR HAMMER
REQUIRED BY USE OF**



INSERTING



FOLDING



FLATTENING

Does complete insertion, folding and flattening operation in three simple rolling operations. First roll inserts tab into lock, second roll bends lock to 45° angle, third roll closes lock flat without bumps — waves — or unevenness. Safe, simple, and easy to use. Increases per man production. Speeds installation, reduces rejects — pays for itself in first 4 hours of use.

**SOLD ONLY BY MAIL. MONEY BACK
GUARANTEE IF NOT SATISFIED.**

\$18.50 Plus COD And Postage

Send check with order, we pay postage
BELL MACHINE SPECIALTIES, INC.
4813 Tremont Ave., Dept. B, Treviso, Penna.

appointments . . .

► **WILLIAM L. REGAN** as sales manager for the Packaged Heating and Cooling Dept. of Chrysler Corp's Airtemp Div. Mr. Regan has been with the division since 1953, has served as district manager in Miami, regional manager in Atlanta, and manager of distribution for the Packaged Heating and Cooling Dept. Carl T. Miller has been named sales promotion manager for the Airtemp Div. He succeeds Lee Epley, who has been appointed advertising manager.



William L. Regan



Frank E. Young

► **FRANK E. YOUNG** as general sales manager for the Jackson & Church Div., York-Shipley, Inc. For the past 11 years, Mr. Young has held various positions in the Jackson & Church organization, serving most recently as assistant sales manager.

► **WILLIAM C. McMICHAEL** as director of sales for CRS Industries, Inc., Mr. McMichael was previously with Air Conditioning Associates, Inc., Philadelphia, and has also been associated with Bryant Air Conditioning Corp. The Norman S. Wright Co., San Francisco, has been named exclusive distributor of the CRS firm's "Statronic" air cleaners in the San Francisco metropolitan area.

► **CHARLES S. STOCK** as manager of central marketing for American Air Filter Co., Inc. In his new position Mr. Stock will be responsible for the formulation, development and coordination of policies, objectives and programs for marketing all of the company's products. Succeeding Mr. Stock as manager of the School Air Systems Div. is Frank K. Platt, formerly assistant to the manager. A. B. Ullrich Jr. has been named manager of the Engineered Air Systems Div.

► **WILLIAM L. McGRATH** as general manager of Carrier Corp.'s Unitary Equipment Operation. Prior to assuming his new post he served as chief engineer of the former Unitary Equipment Div. Mr. McGrath will be in charge of activities relating to the design, production and sale of self-contained air conditioning products. Hermann C. Hoffmann, who joined the firm in 1937 as a junior engineer, has been named general manager of the Machinery and Systems Op-

In celebration of our 60th year of world-wide progress...

A Genuine Coleman gas-lite

Yours to give now as a
"buyer's bonus" when
you install



America's Only Bonded Line Heating and Air Conditioning

This new Coleman Gas-Lite is the key to the most complete and most exciting business-building program ever offered through heating and air conditioning dealers. Most complete because it includes every imaginable aid to selling. Most exciting because it gets an enthusiastic response from everyone in the market for heating or air conditioning.

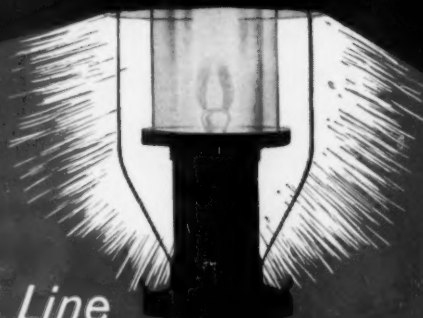
Here's the plan. As an anniversary salute, we're making it possible for you to offer a genuine Coleman Gas-Lite to your customer with the installation of any Coleman central furnace, wall heater, floor furnace or air conditioner. It's an offer your prospects will go for when you give them the lamp as a bonus for buying now! For more information, use the coupon below or call your Coleman distributor for your complete program kit containing full details—right away!



Coleman's Gas-Lite promotion will be announced to home owners in the March 26 Saturday Evening Post

Best selling tool of all—you offer this exclusive \$500 bond with every unit you sell

Also makers of famous Vii-Rock water heaters, Decorama space heaters, Coleman lanterns, camp stoves, jugs and coolers—mobile home heating and air conditioning



Works on any gas—includes 4 wicks
Can be mounted on post (as at left)



Can be mounted on table



Can be mounted on wall with decorator bracket

• The Coleman Company, Inc., Wichita 1, Kansas

Quickly send more information on your Gas-Lite promotion.

• Name _____ Title _____
• Firm Name _____
• Address _____
• City _____ Zone _____ State _____

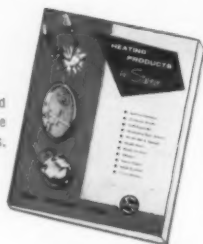


with
STEINEN
Draft
Regulators

- One Calibrated Scale
- Push-Pull Slide Bar Control
- Single Point Gate Suspension
- One Piece Gate Construction
- Factory Pre-Set
- UL Approved

Steinen Draft Regulators are also available in Commercial 12" - 32", Duo-Check for coal and for gas-fired and fuel-less Incinerators. Steinen also manufactures Oil Burner Nozzles, Electrodes and Heating Accessories.

WRITE today for illustrated catalog showing complete line of Steinen heating products.



WM. STEINEN MFG. CO.
 HEATING PRODUCTS DIVISION - DEPT. C-9
 43 Bruen St. • Newark 5, New Jersey

appointments

(Continued)

eration. Named director of advertising and sales promotion of Carrier Air Conditioning Co. is Theodore Skoglund, formerly manager of marketing services for the Unitary Equipment Div.

► **JOHN F. VAN LANDEGHEM**, formerly product manager for sheet and strip, as eastern regional manager for Chase Brass & Copper Co., Inc. Homer D. Gebauer, formerly district manager in Houston, has been named district manager at Pittsburgh. Other new district managers are Charles A. Festge, Milwaukee, and Thomas E. Cox, Waterbury, Conn. Mr. Cox was previously district manager in Charlotte, N.C., and his position in that territory has been assigned to Eugene J. Wasilewski.

► **WILLIAM S. ORTON** as a field representative for General Controls Co.'s Air Conditioning-Refrigeration Controls Div. Mr. Orton will have headquarters in the San Francisco branch office, will handle sales and service in the northern California area. He was formerly a sales engineer for Fabricated Metals Co., San Leandro, Calif.



William S. Orton



George L. Freeland

► **GEORGE L. FREELAND JR.** as a sales representative in the Denver area for Janitrol Heating and Air Conditioning Div. of Midland-Ross Corp. Mr. Freeland will work under the direction of W. R. Egan, western regional sales manager for the division. Arnold G. Schwenk has been named district sales representative in the Cleveland area.

► **J. R. LOUGHNEY** as a sales representative for the Turner Corp. He will cover the Pennsylvania area.

► **EUGENE G. DICKENS** as sales manager of Command-Aire Div., Texas Products Mfg. Co. Before joining Texas Products, Mr. Dickens was associated with the Dallas office of Minneapolis-Honeywell Regulator Co.

► **STANLEY PAWLOSKI** as a sales representative for Penn Ventilator Co. He will handle sales and service in parts of Pennsylvania and New Jersey as well as Delaware.

appointments

(Continued)

► **JAMES A. BRADLEY** as a sales representative for The C. A. Olsen



James A. Bradley



Stephen J. Cheney

Mfg. Co. He will cover Florida, Georgia and Alabama. Stephen J. Cheney will represent the company in the New England states.


► **MARTIN J. COLLINS** as manager of sales administration — a newly created position — for the central residential and commercial air conditioning department of the Fedders Corp. He will have headquarters at Maspeth, N.Y.

► **J. A. NOSER** and **W. D. PRICE** as sales representatives in the Midwest for Diehl Mfg. Co. Mr. Noser, working out of offices at Clayton, Mo., will cover parts of Missouri and Illinois. Mr. Price will serve Kansas and Nebraska as well as part of Missouri. His office is in Kansas City, Mo. Two other new sales representatives are Campbell-Rennebohm Associates, Minneapolis, which will serve Minnesota and the Dakotas as well as parts of Wisconsin and Iowa, and Edward D. Wirth Sales Co., Chicago, which will cover parts of Illinois and Indiana as well as the city of Davenport, Iowa.

• MEMO •

To sheet metal shops:

NEW CLOSED-END UNITED
"POP"® RIVETS seal off high
costs, gain extra manhours in
fastening Ducts, Vents, High
Velocity Ductwork Cabinets,
Signs, Roofs, and Metal
Enclosures.

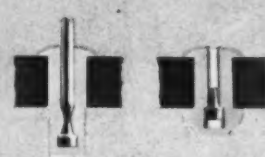


- Seal as they set
- Designed to form a waterproof and air-tight seal
- Inserted and set from the same side

Introduced just recently, this exclusive new self-sealing blind rivet solves the problems of achieving a liquid and vapor tight seal in one simple setting operation. Even regular drilled holes are filled completely and access to reverse side of work is not necessary.

"POP" Closed-End Rivets can cut your fastening time up to 50% and are easier to install than any other blind fasteners — even with unskilled help. In the shop or on the job, "POP" Rivets fasten . . . fast! Just drill a hole, insert the Closed-End "POP" Rivet and set it from the same side, using hand or power tools. One rivet size handles several gauge thicknesses.

If you're looking for a new way to save time and improve quality while you gain convenience, get the facts about new "Closed-End" "POP" Rivets. Call or write us for complete information and the name of your nearest distributor. Better still, order the kit described below and start saving on fastener costs.



HOW THE CLOSED-END "POP" RIVET WORKS

The unique design and special manufacturing process imbeds the setting mandrel into the rivet body. As the mandrel is drawn out with the setting pliers or power gun the rivet expands in the hole, providing a positive seal. At the same time it exerts squeeze on the work itself drawing the points together. The mandrel stem then breaks under a predetermined load at a definite location, thereby assuring consistent setting.

INTRODUCTORY KIT

The Easy Way to Get Started With "POP" Rivets
Contains hand setting tool and approximately
240 "POP" Rivets in various lengths and materials.
Complete with instructions and application hints.
\$19.95 prepaid.

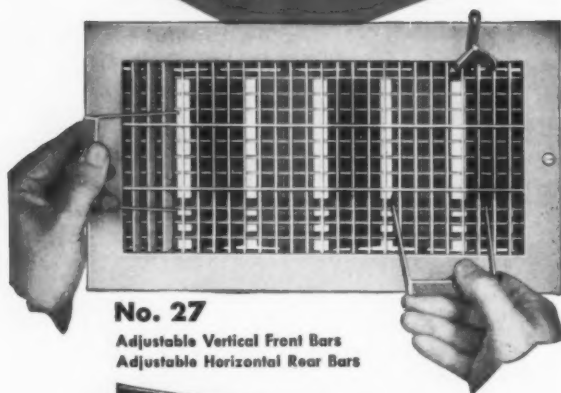
"POP" RIVET DIVISION
UNITED SHOE MACHINERY CORPORATION
7149 River Road, Shelton, Conn.
REgent 5-3391

UNITED
"POP"®
RIVETS

INDEPENDENT

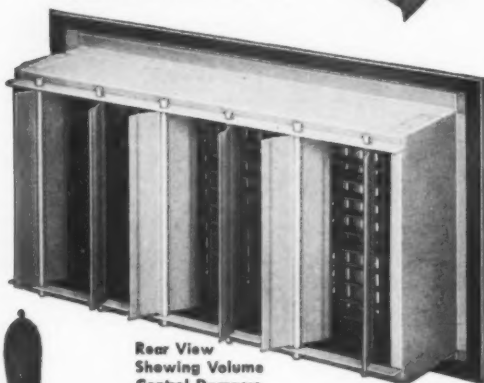
"Fabrikated"
REG. U. S. PAT. OFFICE

DOUBLE CORE REGISTERS
with opposed blade dampers
key control
for Commercial Installations



No. 27

Adjustable Vertical Front Bars
Adjustable Horizontal Rear Bars



Rear View
Showing Volume
Control Dampers

Write for Catalog
No. 58 which gives
complete details and sizes
up to 48" x 24"

Always leading—Always Progressing



**THE INDEPENDENT
REGISTER CO.**

3747 E. 93rd STREET • CLEVELAND, OHIO

Obituaries

Harold T. Helle

HAROLD T. HELLE, 57, Roseville, Minn., died unexpectedly Saturday, July 23, in Duluth, where he was vacationing. Mr. Helle, owner of Helle Heating Co., was a member of the Roofing, Sheet Metal and Air Conditioning Contractors' Association of St. Paul. Surviving are his widow, his stepmother, and a sister, Mrs. Harold Lieske, Silver Spring, Md.

William F. Klockau

WILLIAM F. KLOCKAU, 67, former president of the Nu-Way Corp., died suddenly July 9, 1960 at his home in Moline, Ill. Mr. Klockau was associated with the Nu-Way Corp. for 34 years, serving as president for many years until his retirement in 1958. In 1952 he was elected to the board of directors of the Oil Heat Institute of America. Survivors include his widow, a son, three sisters and three brothers.

Carl R. Wippert

CARL R. WIPPERT, 60, president of McQuay-Norris Mfg. Co., died on August 4 of circulatory complications after an illness of only a few weeks. Mr. Wippert spent his entire 42 year working career with McQuay-Norris, where he started as a secretary in 1918. He held various positions in sales work before becoming executive vice president in 1950. He was elected president in 1959, had served as a director of the company since 1946.

Idea Exchange —

Bulletin Lists Ways To Maintain Volume

(Continued from page 85)

"Point out that baseboard, floor and/or ceiling radiation (electric or hot water) can provide only one function, that of heating alone."

The bulletin ends with this statement to the warm air heating and air conditioning specialist:

"We firmly believe that the big push on electric heat will cause our industry to begin selling something which we have had for many years — and something which we have neglected to sell as well as we could:

The Home Comfort System

"Let's join the electrical industry promotion and use it as a guide to help us sell our industry and our products."



"At Last...you can assure your homeowners
DOUBLE-HUMIDITY with the
NEW SUPER-6000"

Now
with
10

**Thirs-Tee
Evaporator Plates**
... at No Increase in Cost!



"...make *EXTRA PROFITS*
with *Special Introductory*
DOUBLE-PROFIT DEALS"

At last...a humidifier with capacity enough to satisfy ALL of your homeowners. Fool-proof and trouble-free, the SUPER-6000 Humidifier is easily installed during regular service calls. Makes you additional profits on new-home and replacement furnace sales.

Over 8,000,000 homes *need* the Viking "SUPER-6000" Humidifier. Your profit potential is the greatest it's ever been. When you service a furnace without a humidifier, point out to the homeowner the dangers of too-low humidity... and recommend the "SUPER-6000".

At your Wholesalers NOW
Double-Profit Deal #1

Order 6 SUPER-6000
Humidifiers and
you'll receive . . . **1-FREE**

VALUE \$132.65

YOUR COST 69.00

YOUR PROFIT* \$6365

Double-Profit Deal #2

Order 12 SUPER-6000
Humidifiers and
you'll receive . . . **2-FREE**

**Plus . . . 12 FREE Packages of
Thirs-Tee Evaporator Plates**

VALUE \$297.70

YOUR COST 138.00

YOUR PROFIT* \$15970

*Merchandise only, your profit on installation is additional.

VIKING® **AIR PRODUCTS**

5601 WALWORTH AVE. • CLEVELAND 2, OHIO

Manufacturers for 25 years of:

HUMIDIFIERS • FURNACE BLOWERS • ATTIC FANS
JET ROOM BALANCERS • BLOWER PACKAGES
PERMANENT FILTERS

44

INDEX TO ADVERTISERS

Firms represented in this issue are identified by the folio of the page on which their advertising appears.

✓

SERVICE SECTION

Rates for display space in the Service Section are \$15.00 per inch per insertion. One-inch minimum space accepted. Closing date — twentieth of the month preceding issue.



50 SOFT RUBBER KNEE PROTECTORS EVERY ROOFER SHOULD HAVE A PAIR. PRICE \$2.50.

ORDER YOURS TODAY.

JOHNSON LADDER SHOE CO. EAU CLAIRE, WIS.

Classified Advertising

Rates for classified advertising are 15 cents for each word, including heading and address. One inch \$7.00. Count nine words for keyed address. Minimum \$2.50. Closing date 20th of month preceding publication.

✓ FOR SALE

TECHNIQUES OF DUCT WORK ESTIMATING
Learn How the Pros Figure The Big Jobs By Poundage-Square Footage — Linear footage — Fittings. This information is ordinarily very closely guarded and is invaluable to the progressive shop or individual.

Send check or money order \$2.50 made out to

W.A.C. Co.
1 Kenart Road
Medway, Mass.

Complete set of tools for Sheet Metal Shop consisting of Cornice Brake, Box Brake, Slip Rolls, Square Shears, Lockformer, Office Equipment; everything for complete shop operation. Some of these tools used only 2 months. \$2,200. For complete list write State Sheet Metal Co., 720 East 18th St., Owensboro, Ky.

✓ SITUATION OPEN

ESTIMATOR — SHEET — Competent in General Sheet Metal Estimating, sales, sketching; excellent opportunity, salary commensurate with ability. Only experienced need apply. Hemminger Co., 53 Rome St., Newark, N. J.

✓ BUSINESS OPPORTUNITY

BUSINESS OPPORTUNITY — FOR SALE — Air conditioning, heating and sheet metal shop in central California. Doing excellent business and getting better. Big return on investment. Records are open for you to check. Reason for selling — have other interests. Write Key 1196, American Artisan, 6 N. Michigan Ave., Chicago 2, Ill.

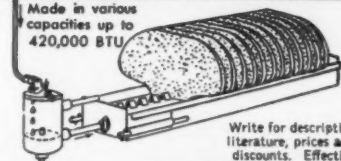
EXPECTING AN ORDER?

You'll get it quicker if your postal delivery zone number is on the order blank, return envelopes, letterheads.

The Post Office has divided 106 cities into postal delivery zones to speed mail delivery. Be sure to include zone number when writing to these cities; be sure to include *your* zone number in *your* return address — after the city, before the state.

MONMOUTH HUMIDIFIERS

Made in various capacities up to 420,000 BTU.



Write for descriptive literature, prices and discounts. Effective control of humidity is positively assured by installing Monmouth Humidifiers. Simple installation and greater customer satisfaction mean larger profits.

CLEVELAND HUMIDIFIER CO.
7802 Wade Park Ave. Cleveland 3, Ohio

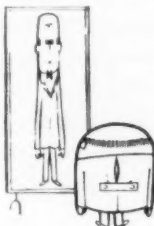
FLOAT VALVES for

Evaporative Coolers, Poultry Troughs, etc.

Operates in 1" of water.

DAN MOREY

814 S. Robertson
Los Angeles 35, Calif.



SPECIAL MESSAGE NO. 2 FOR MANUFACTURERS

... why not do it with mirrors?

Unfortunately, it's not that simple. It takes a lot of hard work and expensive promotion to sell products these days, and in order to do the job properly ALL your prospective customers must be reached.

There's one sure way to assure complete and economical coverage and that's to use the American Artisan Service Section consistently. The Service Section represents a real buy when you consider you're reaching over 10,000 GUARANTEED readers each month at a cost of about 1/4c for each reader.

We'll help with the preparation of copy, too. Just send us literature and we'll supply a copy suggestion at no cost. If you decide to use space the charge is merely \$15.00 per column inch per month.

more information available

phone, write, wire
AMERICAN ARTISAN

6 North Michigan Ave.
Chicago 2, Illinois
Phone — STate 2-6916

Your advertisement in this one column by one inch space costs only \$15.00 per issue — and we'll provide copy service

**NEW 912,000 CU. FT.
WAREHOUSE FOR
METLVENT EXCLUSIVELY**



Warehouse contains over a mile of stock-stacked aisles like this.

Over 406 Truckloads of



**FOR FAST DELIVERY OF ALL ITEMS
TO ALL POINTS IN THE NATION!**

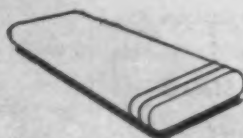
Right on a par with the outstanding quality of METLVENT, the finest of gas vent pipe and fittings, is the unmatched inventory of finished product. Our new METLVENT warehouse contains over 912,000 cu. ft. of storage capacity . . . the equivalent of over 406 truckloads . . . and it's stacked to the I-beams — all for the purpose of providing immediate delivery of all items to all parts of the country.

If you haven't already done so, it will pay you to inspect METLVENT at your H&C Jobbers. We're confident you will agree that in both construction and ease of installation it tops everything in its field by a considerable margin. And, of equal importance, you'll find every item you need quickly available when you want it.

Complete and reliable engineering instructions for making installations conforming to the National Building Code are contained in the METLVENT catalog. Ask your H&C Jobbers for a copy.

**HART & COOLEY
MANUFACTURING CO.**

500 EAST EIGHTH ST., HOLLAND, MICHIGAN
IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO





*aims to serve
and serve well!*



H&C REGISTERS, GRILLES AND DIFFUSERS . . . IDEAL FOR EVERY TYPE OF INSTALLATION . . . ARE AVAILABLE FOR PROMPT DELIVERY FROM THE GREATEST, MOST COMPLETE INVENTORY KNOWN TO THE INDUSTRY



The fixed and constant goal of the H&C organization is not only to provide the finest registers, grilles and diffusers for each and every requirement . . . but to make all standard items quickly available. To the latter end we maintain the largest inventory known to the industry making it possible to have practically all orders for stock items on their way to the purchaser promptly.

If you are one of our valued customers you know these facts. If you are not as yet, give us a whirl. You're bound to like our products, the accuracy of the engineering data pertaining to them, the breadth of the line and our desire and ability to serve and serve well.

HART & COOLEY MANUFACTURING CO.

500 EAST EIGHTH ST., HOLLAND, MICHIGAN

IN CANADA: HART & COOLEY MANUFACTURING CO., FORT ERIE, ONTARIO

No. 406 THE NEW AND BETTER 18" DIFFUSER

EXCELLENT APPEARANCE

as is evident at a glance.

ALL STEEL

with the tried and proven sturdiness that is complete assurance against warping.

GREATER AIR CAPACITY

. . . as much as 25% more than some diffusers of this type.

PERFECT AIR PATTERN

. . . achieved with the combination of curvilinear and horizontal fins . . . blankets entire window or wall area.

BALANCING STOP

permits easy and accurate balancing of the system.

EASY INSTALLATION

"Flexitab" boot retainers and easy "knock-outs" for increasing boot opening.

FOR MATCHING RETURN SPECIFY NO. 407





New White-Rodgers Thermostats with the **STRAIGHT-LINE** look!

Designed to help you sell more! Engineered to do more!
Sealed mercury contacts... Level Bubble mounting plate...
Adjustable anticipation... PushButton heating-cooling
sub-bases... Distinctive styling by famed Earl Claus.



MAIN line

Top value in modern
design and performance.



CUSTOM line

Proven performer at a
remarkable low price.

D'LUX line (Feature photo above)

The ultimate in comfort temperature control.



Write for full color folder R-1691

WHITE-RODGERS

St. Louis 6, Missouri
1209 Cass Avenue

Toronto 8, Canada
611 Gerrard St. East

Basel, Switzerland
Münchensteinerstrasse 2

